Pulse Valve and Automation Components for Dust Collector Systems
Automation Components for Dust Collector System

- Pulse valve (integral pilot)
- Pulse valve (remote pilot)
- Pilot valve (panel mounting)
- Filter Regulator (FRL)
- Sequential controllers
- Pneumatic cylinders
- Power Pulse Tank System
- Pilot boxes
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http://www.asco.com/en-cn/Pages/buy-now.aspx
APPLICATIONS FOR DUST COLLECTOR SYSTEMS

This is a short introduction of the application area Dust Collector Systems and more specific Fabric Filter systems, together with the relevant technical information on filter systems and pulse valves.

Air Pollution Control techniques

Air Pollution Control techniques, like all environmental protection systems, have become a subject of global concern. There are six (6) major technologies used for air pollution control:

- mechanical collectors
- fabric filters
- electrostatic precipitators
- wet, dry and semi-dry scrubbers
- selective catalytic reduction
- flue gas desulphurisation

An important driving factor for the investments in these systems are the local, and for Europe the European, legislations. But also the public opinion, the concern for their image can be a driving factor, especially for industrial companies, to invest in air pollution control systems.

Fabric filter systems are using pulses of air and therefore form an interesting market niche for us, being one of the leading companies for (solenoid) valves and pneumatic components.

Fabric Filter Systems

The history

The first industrial applications for fabric filter systems were developed for the recovery of valuable products from dusts on fumes in nonferrous smelting and refining operations. Already in 1852 a man called S.T. Jones applied for a patent on a single bag design for the recovery of zinc oxide fume in the U.S.A.

Major improvements came after 1950, although a lot of patents and developments existed from before that time. In that period the Reverse Air Jet system was developed which had many advantages over the systems using a mechanical shaking mechanism to clean the bags.

At the end of the 50's the Pulse Jet Filtration system was introduced. This type of system provides, in a continuous cleaning filter operation, a uniform air flow and a high air-to-cloth ratio. The design is very simple and contains almost no moving mechanical parts.

In the 70's and 80's developments were speed up because legislation more and more forced industries, power stations and waste incinerators to use air pollution control systems. This of course guaranteed an interesting market potential for the filter building companies.

Type of Fabric Filter installations

In general terms a fabric filter system consists of a porous flexible layer of textile material through which a dusty gas is passed to separate particles from the gas stream. Deposits on the textile are removed periodically by powerful moving and thereby cleaning of the cloth to maintain the pressure drop across the filter within practical operating limits. There are several methods to make the movement of the textile which we will describe later.

Depending on the physical shape of the fabric (textile) we speak about bag or hose and envelope or pocket filter systems. The filter bags consist of round, oval or square bags (hoses) with a diameter from one to several decimeters. In the envelope or pocket filters the fabric is folded in the shape of an envelope.

The dust which is collected on the fabric during the filtration process has to be removed from time to time. Several techniques have been developed to do this.

Fig. 1 gives a schematic overview of the cleaning systems most commonly used.

The major types of filtration systems to remove dust from the filter media are:

- shaker systems
- reverse air cleaning
- pulse/jet cleaning

A short description of each technique can be found below.

Shaker filtration systems

The filter bags or envelopes are intermittent shaken by means of an eccentric rod assembly and can only take place if the filtration process through the fabric is stopped. This cleaning technique is mainly used in smaller sized filter systems as the fabric load has to stay low. In general, this system is used in combination with weaved fabric filters. The cleaning function is not optimal, therefore the use of shaker systems is decreasing and is being replaced by the following techniques.

Reverse Air Cleaning

In this type of system the air or gas stream will be forced by a ventilator in the reverse direction to clean the filter bags. During this filtration action the filter system or a relevant section has to be shut off. This type of system can be used for low up till medium fabric loads. Also, the filter medium for this system is normally a woven fabric.
Pulse/Jet Cleaning
Pulse jet dust collector systems periodically inject short, powerful pulses of compressed air, in the direction opposite to the air flow, into a filterbag or a row of filterbags. This air shot creates a sudden bag expansion that breaks the dust cake from the outer surface of the bag's fabric. The dust is effectively removed by inertial forces as the bag reaches maximum expansion and falls down into a hopper. Depending on the type of installation, typical pulse time is around 100 msec. while the interval between the pulses in each bag or row of bags is around 3 to 6 minutes. More and more the pulse sequence will depend on the differential pressure measurements over the filter bags.

Sequential controllers or PLC’s are used to program the interval time setting and commands to the pulse valves. There are systems using medium pressure (2-3 bar) and systems for high pressure (6-8 bar). Venturis are used to increase the air speed. The cleaning normally takes place while the filter system is in operation. The fabric materials used in these systems have to be adapted to:

- the particle size
- degree of filtration
- filter resistance

See also figure 2, showing a typical setup of an air/jet dust collector system. The cleaning degree of this type of systems is very good which made the system very popular. A disadvantage is the high energy consumption and limited length of the bags.

Applications
Fabric filter systems are suitable for a broad application area because:

- small particle sizes down to 0.01 micron can be filtered
- with the enormous variety in fabric materials, most particle types can be filtered
- the temperature range has been increased due to the availability of new filter materials such as PTFE for maximum 250°C and ceramic filter bags for a maximum continuous operating temperature of 1150°C
- investment level is relatively low compared to other air pollution control techniques.
Dust comes under the ATEX Directive 94/9/EC

ATEX is not just about potentially explosive gaseous environments, dust is equally dangerous. Therefore we have complemented our existing ATEX approvals for gaseous atmospheres with dust approvals for dust collector products.

The ATEX directive, which came into force on July 1, 2003, has concentrated the minds in all sectors of industry on the dangers of potentially explosive atmospheres.

The IECEx International Certification Scheme is a global certification scheme based on standards of the International Electrotechnical Commission and offers a certification of conformity with the IEC series of standards 60079, 61241 and 61779. This certification facilitates the international trade of electrical equipment intended for use in explosive atmospheres and contributes to avoiding the multiplicity of national certifications while guaranteeing an adapted level of safety. The certification is issued by an organisation recognised by IECEx, and all the certificates are available on the IECEx website.

ATEX and IECEx are more than welcome for the focus that they provide on industrial dust as a potential source of explosion. Almost all types of industrial dust can be considered to be potentially explosive, so it comes as no surprise that the procedure for technical evaluation of safety measures used to avoid the risks of dust explosions is both complex and extensive.

In order to describe the explosion risk posed by dust, a number of factors need to be described. These include particle size, explosion limits, the maximum explosion pressure, the destructive power of the combustion, moisture content and the minimum ignition energy required.

Once the dust has been characterised, an examination then needs to be made of the industrial processes concerned. This takes into account possible ignition sources, explosive volumes, operating temperatures and an assessment of the possibility of a dust explosion under given conditions.

Helpfully for engineers involved in safety evaluations of dust-laden atmospheres, ATEX simplifies explosion protection with a three zone concept.

Zone 20 or category 1D, the most critical of the three, is an area in which an explosive atmosphere in the form of a cloud of combustible dust in the air is present continuously, or for long periods, or frequently. Typically, these conditions would be encountered on the inside of containers or pipelines and enclosed conveying equipment.

Zone 21 or category 2D, is a place in which an explosive atmosphere in the form of a cloud of combustible dust in the air is likely to occur in normal operation occasionally for example when discharging and filling equipment.

Zone 22 or category 3D, is a place in which an explosive atmosphere in the form of a cloud of combustible dust in the air is not likely to occur in normal operation but, if it does occur, will be persist for a short period only.

Areas in which dust escapes and forms deposits are included in this category. Whatever the zone, one of the biggest risks when it comes to preventing dust explosions, is posed by enclosures.

The ATEX directive defines the type of protection provided by enclosures, based on limiting the maximum surface temperature of the enclosure and using dust-tight and dust-protected enclosures to prevent dust entry.

The legislation covers two degrees of protection: dust-tight, for use of equipment in Zone 20, 21 and even 22 in the case of the presence of conductive dust; and dust protected, for use of equipment in Zone 22 areas in the presence of nonconductive dust.

The scope of the ATEX directive on enclosures is comprehensive, extending down to electrical actuators used on individual valve types. This is important due to the increasing use of solenoid valves in the dust collector systems that reduce industrial pollution.

Our know-how on explosion proof enclosures and dust collector valves has resulted in the widest range of solenoid valves complying with the new directive for use in dust-laden and of course gaseous environments. The enclosures meet the needs of all industry types, being available in metals such as aluminium, cast iron and stainless steel and also the convenient epoxy encapsulations.

In addition our pilot boxes and Power Pulse Tank Systems are ATEX approved and the latter is also IECEx approved. Even the remote design can be offered as an ATEX approved product, following the Non-Electrical ATEX approval according to EN 13463-1.
**AC / DC common PV**
- Structure rationalization
- Quick open / close

**Red Hat II coil**
- Epoxy encapsulation
- IP 65
- Less power consumption with higher performance

**Painted surface for immersion type**
- Higher harsh environment resistance
- Better appearance

**High flow**
- Competitive flow rate at same port size
PULSE VALVES
single stage, integral pilot
threaded body or compression fitting
3/4" to 1"

FEATURES
• The diaphragm pulse valves are especially designed for dust collector service applications, combining high flow, long life and extremely fast opening and closing to produce reliable and economical operation
• The high flow, angle type bodies, springless construction, in combination with the special diaphragm assemblies give the unique operating features required for dust collector service applications
• Integral compression fittings for fast, easy, secure installation
• Waterproof and explosionproof solenoids for use in potentially explosive atmospheres
• The valves satisfy all relevant EC directives

GENERAL
Differential pressure (PS) 0.35 - 8.5 bar [1 bar = 100kPa]
Ambient temperature range -40 ~ +85°C

<table>
<thead>
<tr>
<th>Fluids (*)</th>
<th>Temperature Range (TS)</th>
<th>Diaphragm (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>-40°C ~ +85°C</td>
<td>TPE (hytrel)</td>
</tr>
</tbody>
</table>

MATERIALS IN CONTACT WITH FLUID
(*) Ensure that the compatibility of the fluids in contact with the materials is verified

Body  Aluminium
Core tube  Stainless steel
Core and plugnut  Stainless steel
Core spring  Stainless steel
Sealing & disc  NBR
Diaphragm  TPE
Shading coil  Copper
Coil insulation class  F
Connector  Spade plug (cable Ø 6 - 10 mm)
Connector specification  ISO4400
Electrical safety  IEC335

ELECTRICAL CHARACTERISTICS
Standard voltages DC (±): 24V
(Other voltages and 60 Hz on request)
AC (±): 24V/50; 110V/50, 120V/60; 220V/50, 240V/60

<table>
<thead>
<tr>
<th>Coil Type</th>
<th>Inrush (VA)</th>
<th>Holding (VA)</th>
<th>Hot/Cold (W)</th>
<th>Temperature Range (TS) °C</th>
<th>Protection</th>
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<td>-</td>
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SPECIFICATIONS

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Orifice Size (mm)</th>
<th>Flow Coefficient (m³/h)</th>
<th>Flow Coefficient (l/min)</th>
<th>Operating Pressure Differential (bar)</th>
<th>Coil Type</th>
<th>Catalog Number</th>
<th>Option</th>
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</thead>
<tbody>
<tr>
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<td>Ø - Compression fitting pipe connection 3/4&quot;</td>
<td>24</td>
<td>14</td>
<td>233</td>
<td>0.35</td>
<td>8.5</td>
<td>8.5</td>
<td>M6-FT</td>
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<tr>
<td>1&quot;</td>
<td>27</td>
<td>17</td>
<td>283</td>
<td>0.35</td>
<td>8.5</td>
<td>8.5</td>
<td>M6-FT</td>
</tr>
</tbody>
</table>

* Express in 10 business days, please contact with ASCO for more details.
OPTIONS

- Waterproof enclosure with embedded screw terminal coil according to protection class IP67, CEE 10
- Explosionproof solenoids for hazardous locations according to ATEX and national standards
- Compliance with "UL" standards
- Plug with visual indication and/or peak voltage suppression
- Electronic timer
- Valves can also be supplied with FPM (fluoroelastomer) diaphragms and seals. Use the appropriate optional suffix letter for identification

INSTALLATION

- The valves can be mounted in any position without affecting operation
- Threaded pipe connection is G (ISO 228/1) or compression fitting
- For compression fitting types tightness is achieved by the compressed gasket on the blow tube
- The use of the rubber gaskets as sealing members will allow a slight misalignment in piping when using compression fittings
- Other pipe threads are available on request
- Installation/maintenance instructions are included with each valve
- Spare parts kits and replacement coils are available

DIMENSIONS (mm), WEIGHT (kg)

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>Weight (1)</th>
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<td>175</td>
<td>192</td>
<td>0.90</td>
</tr>
</tbody>
</table>

(1) Incl. coil and connector
(2) Construction type
FEATURES
• The diaphragm pulse valves are especially designed for dust collector service applications, combining high flow, long life and extremely fast opening and closing to produce reliable and economical operation.
• Integral compression fittings for fast, easy, secure installation.
• The high quality diaphragms are reinforced and wear resistant to guarantee a long operating life, even under harsh conditions.
• Various optional waterproof and explosionproof solenoids for use in potentially explosive atmospheres.
• The valves satisfy all relevant EC directives.

MATERIALS IN CONTACT WITH FLUID
(*) Ensure that the compatibility of the fluids in contact with the materials is verified.

<table>
<thead>
<tr>
<th>Fluids (*)</th>
<th>Temperature Range (TS)</th>
<th>Diaphragm (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>-20°C – +85°C</td>
<td>Chloroprene</td>
</tr>
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</table>

GENERAL
Differential pressure (PS) 0.35 - 8.5 bar [1 bar = 100kPa]
Ambient temperature range -20 ~ +85°C

ELECTRICAL CHARACTERISTICS
Standard voltages DC (=): 24V
(Other voltages and 60 Hz on request) AC (~): 24V/50; 110V/50, 120V/60; 220V/50, 240V/60

<table>
<thead>
<tr>
<th>Coil Type</th>
<th>Nominal Power Ratings</th>
<th>Operator Temperature Range (TS)</th>
<th>Protection</th>
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<td>Inrush (VA)</td>
<td>Holding (VA)</td>
<td>Hot/Cold (W)</td>
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SPECIFICATIONS

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<td></td>
<td>(mm)</td>
<td>(m³/h) (l/min)</td>
<td>Min. (PS)</td>
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<tr>
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<td>MXX-FT</td>
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<td></td>
<td>3&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) Contains spring above the main diaphragm
(2) Threaded pipe connection is external (male thread)
* Express in 10 business days, please contact with ASCO for more details.
Solenoid Valves Series 353

Options

- Waterproof enclosure with embedded screw terminal coil according to protection class IP67, CEE 10
- Explosionproof solenoids for hazardous locations according to ATEX and national standards
- Hose connection executions (3" only)
- Compliance with "UL" standards
- Plug with visual indication and/or peak voltage suppression
- Electronic timer
- Valves can also be supplied with FPM (fluoroelastomer) diaphragms and seals. Use the appropriate optional suffix letter for identification

Installation

- The valves can be mounted in any position without affecting operation
- Threaded pipe connection is G (ISO 228/1) or compression fitting
- For compression fitting types tightness is achieved by the compressed gasket on the blow tube
- The use of the rubber gaskets as sealing members will allow a slight misalignment in piping when using compression fittings
- Other pipe threads are available on request
- Installation/maintenance instructions are included with each valve
- Spare parts kits and replacement coils are available

Dimensions (mm), Weight (kg)

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>Weight (kg)</th>
<th>Fig.</th>
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<td>222</td>
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<td>Fig.1</td>
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<td>31</td>
<td>95</td>
<td>168</td>
<td>165</td>
<td>49.6</td>
<td>G3/4</td>
<td>165</td>
<td>210</td>
<td>222</td>
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<td>Fig.1</td>
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<td>SCG353G060</td>
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<td>143</td>
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<td>131</td>
<td>225</td>
<td>238</td>
<td>1.75</td>
<td>Fig.2</td>
</tr>
</tbody>
</table>

(1) Incl. coil and connector
(2) Construction type
PULSE VALVES

single stage, remote pilot
threaded body or compression fitting
3/4" to 1 1/2"

FEATURES
- The diaphragm pulse valves are especially designed for dust collector service applications, combining high flow, long life and extremely fast opening and closing to produce reliable and economical operation
- The high flow, angle type bodies in combination with the special main diaphragm assemblies give the unique operating features required for dust collector service applications
- Integral compression fittings for fast, easy, secure installation
- Valves can be supplied according to ATEX Directive 94/9/EC for non-electrical equipment by using suffix GD
- The valves satisfy all relevant EC directives

GENERAL
Differential pressure (PS) 0.35 - 8.5 bar [1 bar = 100kPa]
Ambient temperature range -20/-40 ~ +85°C

<table>
<thead>
<tr>
<th>Fluids (*)</th>
<th>Temperature Range (TS)</th>
<th>Diaphragm (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>-40°C ~ +85°C</td>
<td>TPE (3/4&quot; &amp; 1&quot;)</td>
</tr>
<tr>
<td>air</td>
<td>-20°C ~ +85°C</td>
<td>Chloroprene</td>
</tr>
</tbody>
</table>

MATERIALS IN CONTACT WITH FLUID
(* ) Ensure that the compatibility of the fluids in contact with the materials is verified
| Body      | Aluminium |
| Spring    | Stainless steel |
| Diaphragm | TPE (Chloroprene) |

PILOT SOLENOID VALVES (2/2 NC function)

<table>
<thead>
<tr>
<th>Main Pulse Valve Catalog Number</th>
<th>Remote Pilot Connection</th>
<th>Recommended Executions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Orifice Size (mm)</td>
<td>Manifold Pilot Valves in a Box</td>
</tr>
<tr>
<td>G353A041</td>
<td>G1/8</td>
<td>pilot box series 110 2 to 12 pilots 1/8</td>
</tr>
<tr>
<td>G353.055</td>
<td>G1/8</td>
<td></td>
</tr>
<tr>
<td>G353A042</td>
<td>G1/8</td>
<td></td>
</tr>
<tr>
<td>G353.056</td>
<td>G1/8</td>
<td></td>
</tr>
<tr>
<td>G353A045</td>
<td>G1/4</td>
<td>pilot box series C20 4 to 6 valves 1/4</td>
</tr>
<tr>
<td>G353.066</td>
<td>G1/4</td>
<td></td>
</tr>
</tbody>
</table>

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Remote Pilot connection</th>
<th>Orifice Size (mm)</th>
<th>Flow Coefficient Kv</th>
<th>Operating Pressure Differential (bar)</th>
<th>Catalog Number</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>G - Threaded pipe connection, TPE diaphragm</td>
<td>3/4&quot;</td>
<td>1/8</td>
<td>24</td>
<td>14</td>
<td>233</td>
<td>0.35</td>
</tr>
<tr>
<td>1&quot;</td>
<td>1/8</td>
<td>27</td>
<td>17</td>
<td>283</td>
<td>0.35</td>
<td>8.5</td>
</tr>
<tr>
<td>G - Threaded pipe connection, CR diaphragm</td>
<td>1 1/2&quot;</td>
<td>1/4</td>
<td>52</td>
<td>46</td>
<td>768</td>
<td>0.35</td>
</tr>
<tr>
<td>Ø - Compression fitting pipe connection, TPE diaphragm</td>
<td>3/4&quot;</td>
<td>1/8</td>
<td>24</td>
<td>14</td>
<td>233</td>
<td>0.35</td>
</tr>
<tr>
<td>1&quot;</td>
<td>1/8</td>
<td>27</td>
<td>17</td>
<td>283</td>
<td>0.35</td>
<td>8.5</td>
</tr>
<tr>
<td>Ø - Compression fitting pipe connection, CR diaphragm</td>
<td>1 1/2&quot;</td>
<td>1/4</td>
<td>52</td>
<td>43</td>
<td>717</td>
<td>0.35</td>
</tr>
</tbody>
</table>

* Express in 10 business days, please contact with ASCO for more details
OPTIONS

• Valves can also be supplied with FPM (fluoroelastomer) diaphragms and seals. Use the appropriate optional suffix letter for identification
• Sequential controller for pilot solenoid valves
• Pilot boxes containing 2 to 12 pilot solenoid valves
• Pilot solenoid valves can be equipped with explosionproof solenoids for hazardous locations according to "ATEX" and national standards

INSTALLATION

• The valves can be mounted in any position without affecting operation
• Threaded pipe connection is G (ISO 228/1) or compression fitting
• When connecting piping or tubing to the G1/8 connection in the valve bonnet, the remote ASCO pilot valve should be mounted as close as possible to the main pulse valve. Connection tubing lengths of 3 meter or less have little effect on the pulse response. Installations with over 3 meter of tubing must be tested under actual operating conditions. Tubing with Ø 6 mm O.D. is recommended for all installations
• For compression fitting types tightness is achieved by the compressed gasket on the blow tube
• Other pipe threads are available on request
• Installation/maintenance instructions are included with each valve
• Spare parts kits and replacement coils are available

DIMENSIONS (mm), WEIGHT (kg)

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight(1)</th>
<th>Notes(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G353A041</td>
<td></td>
<td>G 1/8 *</td>
<td>51</td>
<td>89</td>
<td>75</td>
<td>41</td>
<td>64</td>
<td>0.45</td>
<td>Fig.1</td>
</tr>
<tr>
<td>G353A042</td>
<td></td>
<td>G 1/8 *</td>
<td>51</td>
<td>89</td>
<td>75</td>
<td>41</td>
<td>64</td>
<td>0.40</td>
<td>Fig.1</td>
</tr>
<tr>
<td>G353A045</td>
<td>30</td>
<td>G 1/4 *</td>
<td>41</td>
<td>130</td>
<td>136</td>
<td>71</td>
<td>98</td>
<td>1.00</td>
<td>Fig.1</td>
</tr>
<tr>
<td>G353.055</td>
<td></td>
<td>G 1/8 *</td>
<td>88</td>
<td>125</td>
<td>75</td>
<td>47</td>
<td>109</td>
<td>0.58</td>
<td>Fig.2</td>
</tr>
<tr>
<td>G353.056</td>
<td></td>
<td>G 1/8 *</td>
<td>88</td>
<td>125</td>
<td>75</td>
<td>47</td>
<td>129</td>
<td>0.61</td>
<td>Fig.2</td>
</tr>
<tr>
<td>G353.066</td>
<td>30</td>
<td>G 1/4 *</td>
<td>117</td>
<td>177</td>
<td>136</td>
<td>73</td>
<td>161</td>
<td>1.33</td>
<td>Fig.2</td>
</tr>
</tbody>
</table>

(1) Incl. coil and connector
(2) Construction type
PULSE VALVES

dual stage, remote pilot threaded body 1 1/2" to 3" or compression fitting Ø 1 1/2"

FEATURES
- The pulse valves are especially designed for dust collector service applications, combining high flow, long life and extremely fast opening and closing to produce reliable and economical operation
- The high flow, angle type bodies in combination with the special main diaphragm assemblies give the unique operating features required for dust collector service applications
- Integral compression fittings for fast, easy, secure installation
- Valves can be supplied according to ATEX Directive 94/9/EC for non-electrical equipment by using suffix GD
- The components satisfy all relevant EC directives

GENERAL
Differential pressure (PS) 0.35 - 8.5 bar [1 bar = 100kPa]
Ambient temperature range -20 ~ +85°C

<table>
<thead>
<tr>
<th>Fluids</th>
<th>Temperature Range (TS)</th>
<th>Diaphragm</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>-20°C ~ +85°C</td>
<td>Chloroprene</td>
</tr>
</tbody>
</table>

CONSTRUCTION
Body Aluminium
Springs Stainless steel
Diaphragms Chloroprene

PILOT SOLENOID VALVES (2/2 NC function)

<table>
<thead>
<tr>
<th>Main Pulse Valves</th>
<th>Remote Pilot Connection</th>
<th>Orifice Size (mm)</th>
<th>Manifold Pilot Valves in a Box</th>
<th>Single Pilot Valves</th>
</tr>
</thead>
<tbody>
<tr>
<td>G353A046</td>
<td>G1/8</td>
<td>3.6</td>
<td>pilot box series 110</td>
<td>IP00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 to 12 pilots 1/8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>series 257</td>
<td></td>
</tr>
<tr>
<td>G353A063</td>
<td>G1/4</td>
<td>5.6</td>
<td>pilot box series C20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 to 6 valves 1/4</td>
<td></td>
</tr>
<tr>
<td>G353.048</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G353.049</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G353.058</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Orifice Size</th>
<th>Flow Coefficient Kv</th>
<th>Operating Pressure Differential (bar)</th>
<th>Catalog Number</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm)</td>
<td>(m³/h)</td>
<td>(l/min)</td>
<td>FPM</td>
<td>EPDM</td>
</tr>
<tr>
<td>G - Threaded pipe connection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>52</td>
<td>46</td>
<td>768</td>
<td>0.35</td>
<td>8.5</td>
</tr>
<tr>
<td>2&quot;</td>
<td>66</td>
<td>66</td>
<td>1290</td>
<td>0.35</td>
<td>8.5</td>
</tr>
<tr>
<td>2 1/2&quot;</td>
<td>66</td>
<td>92</td>
<td>1540</td>
<td>0.35</td>
<td>8.5</td>
</tr>
<tr>
<td>3&quot;</td>
<td>75</td>
<td>170</td>
<td>2833</td>
<td>1.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

| Ø - Compression fitting pipe connection |
| 1 1/2"    | 52           | 43                  | 717                                   | 0.35 | 8.5  | 8.5 | G353A063 | V |

(1) Threaded pipe connections are external (male thread).
OPTIONS

• Valves can also be supplied with FPM (fluorelastomer) diaphragms and seal materials. Use the appropriate optional suffix letter for identification
• Sequential controller for pilot solenoid valves
• Pilot boxes containing 4 to 12 pilot solenoid valves
• Pilot solenoid valves can be equipped with explosionproof solenoids for hazardous locations according to "ATEX" and national standards

INSTALLATION

• The valves can be mounted in any position without affecting operation
• Threaded pipe connection is: G = G (ISO 228/1) or compression fittings
• When connecting piping or tubing to the G1/8 or G1/4 connection in the valve bonnet, the remote ASCO pilot valve should be mounted as close as possible to the main pulse valve. Connection tubing lengths of 3 meter or less have little effect on the pulse response. Installations with over 3 meter of tubing must be tested under actual operating conditions. Tubing with Ø 6 or Ø 8 mm O.D. is recommended for all installations
• For compression fitting types tightness is achieved by the compressed gasket on the blow tube
• Other pipe threads are available on request
• Installation/maintenance instructions are included with each valve
• Spare parts kit and replacement coils are available

DIMENSIONS (mm), WEIGHT (kg)

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>Weight&lt;sup&gt;(1)&lt;/sup&gt;</th>
<th>Fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G353A046</td>
<td>30</td>
<td>G 1/8&quot;</td>
<td>71</td>
<td>130</td>
<td>136</td>
<td>G 3/8&quot;</td>
<td>90</td>
<td>120</td>
<td>1.10</td>
<td>Fig.1</td>
</tr>
<tr>
<td>G353A048</td>
<td>30</td>
<td>G 1/4&quot;</td>
<td>95</td>
<td>168</td>
<td>165</td>
<td>G 3/4&quot;</td>
<td>121</td>
<td>166</td>
<td>2.60</td>
<td>Fig.1</td>
</tr>
<tr>
<td>G353A049</td>
<td>30</td>
<td>G 1/4&quot;</td>
<td>95</td>
<td>168</td>
<td>165</td>
<td>G 3/4&quot;</td>
<td>121</td>
<td>166</td>
<td>2.30</td>
<td>Fig.1</td>
</tr>
<tr>
<td>G353.058</td>
<td>48</td>
<td>G 1/4&quot;</td>
<td>143</td>
<td>240</td>
<td>192</td>
<td>G 1/2&quot;</td>
<td>121</td>
<td>214</td>
<td>3.70</td>
<td>Fig.3</td>
</tr>
<tr>
<td>G353A063</td>
<td>30</td>
<td>G 1/8&quot;</td>
<td>87</td>
<td>177</td>
<td>136</td>
<td>G 3/8&quot;</td>
<td>96</td>
<td>183</td>
<td>1.43</td>
<td>Fig.2</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> Incl. coil and connector
<sup>(2)</sup> Construction type
PULSE VALVES
Immersion Type
size 3"

FEATURES
• The pulse diaphragm valves are especially designed for dust collector service applications, combining high flow and long life
• Extra epoxy coating for
  - Better corrosion resistance and appearance
  - The valves satisfy all relevant EC directives
• The high quality diaphragms are wear resistant and guarantee a long operating life, even under harsh conditions
• Easy installation directly into header tank

GENERAL
Differential pressure 1~6 bar [1 bar = 100kPa]
Maximum allowable pressure 6 bar
Ambient temperature range -40 ~ +85°C

<table>
<thead>
<tr>
<th>Fluid (*)</th>
<th>Temperature Range (TS)</th>
<th>Diaphragm (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>-40°C ~ +85°C</td>
<td>Neoprene</td>
</tr>
</tbody>
</table>

CONSTRUCTION
Body Aluminium
Core tube Stainless steel
Core and plugnut Stainless steel
Springs Stainless steel
Seals & disc NBR
Diaphragms Neoprene
Shading coil Copper
Coil insulation class F
Connector Spade plug(Pg11P)
Connector specification ISO4400
Electrical safety IEC335

ELECTRICAL CHARACTERISTICS
Standard voltages DC (=): 24V
(Other voltages and 60 Hz on request) AC (~): 24V/50, 110V/50, 120V/60, 220V/50, 240V/60

<table>
<thead>
<tr>
<th>Coil Type</th>
<th>Nominal Power Ratings</th>
<th>Ambient Temperature Range (TS)</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inrush (VA)</td>
<td>Holding (VA)</td>
<td>Hot/Cold (W)</td>
</tr>
<tr>
<td>238613-059</td>
<td>50</td>
<td>20</td>
<td>10.1</td>
</tr>
<tr>
<td>238613-006</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

SPECIFICATIONS
<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Orifice Size (mm)</th>
<th>Flow Coefficient (m³/h)</th>
<th>Operating Pressure Differential (bar) Min.</th>
<th>Max. (PS)</th>
<th>Coil Type</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>75mm</td>
<td>170</td>
<td>1</td>
<td>6</td>
<td>MXX-FT</td>
<td>SCR353G060</td>
</tr>
</tbody>
</table>

* Express in 10 business days, please contact with ASCO for more details
OPTIONS

- Waterproof enclosure with embedded screw terminal coil according to protection class IP67, CEE 10
- Explosionproof and watertight solenoids according to "NEMA" 4, 4X, 7 & 9, NEPSI Ex mb
- Plug with visual indicator and/or peak voltage suppression
- Electronic timer

INSTALLATION

- The valves can be mounted in any position without affecting operation
- Installation / maintenance instructions are included with each valve
- Spare parts kit and replacement coils are available
- Rubber gasket provided for mounting between valve and header tank
- 8 mounting bolts (M10) also provided

DIMENSIONS (mm), WEIGHT (kg)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>2.85</td>
</tr>
<tr>
<td>Incl. coil and connector</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of solenoid valves series 353 with dimensions and weight information.]
PULSE VALVES
Immersion Type
3” & 3 1/2”

FEATURES
• The pulse diaphragm valves are especially designed for dust collector service applications, combining high flow and long life
• Extra epoxy coating for
  - Better corrosion resistance and appearance
  - The valves satisfy all relevant EC directives
• The high quality diaphragms are wear resistant and guarantee a long operating life, even under harsh conditions
• Easy installation directly into header tank
• Special design for sharper opening & closing with higher tank performance ratio

GENERAL
Differential pressure 1~6 bar [1 bar = 100kPa]
Ambient temperature range -40 ~ +85°C

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Temperature Range (TS)</th>
<th>Diaphragm</th>
</tr>
</thead>
<tbody>
<tr>
<td>air</td>
<td>-40°C ~ +85°C</td>
<td>Neoprene</td>
</tr>
</tbody>
</table>

CONSTRUCTION
Body  Aluminum
Core tube Stainless steel
Core and plugnut Stainless steel
Springs Stainless steel
Seals & disc Nylon & NBR (Nitrile)
Diaphragms Neoprene
Shading coil Copper
Coil insulation class F
Connector Spade plug
Connector specification ISO 4400
Electrical safety IEC 335

ELECTRICAL CHARACTERISTICS
Standard voltages DC (=): 24V
(Other voltages and 60 Hz on request) AC (–): 24V/50; 110V/50, 120V/60; 220V/50, 240V/60

<table>
<thead>
<tr>
<th>Coil Type</th>
<th>Nominal Power Ratings</th>
<th>Ambient Temperature Range (TS)</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inrush (VA)</td>
<td>Holding (VA)</td>
<td>Hot/Cold (W)</td>
</tr>
</tbody>
</table>
| 238613-059 | 50       | 25          | 10.1        | -     | -40 ~ +85 IP65
| 238613-006 | -        | -           | -           | 11.6  |

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Orifice Size</th>
<th>Flow Coefficient</th>
<th>Operating Pressure Differential (bar)</th>
<th>Coil Type</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>(mm)</td>
<td>(m³/h) (l/min)</td>
<td>Min.</td>
<td>Max. (PS)</td>
<td></td>
</tr>
<tr>
<td>Tank Mounted Version</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>76</td>
<td>210</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>3 1/2”</td>
<td>90</td>
<td>280</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

* Express in 10 business days, please contact with ASCO for more details
OPTIONS

- Waterproof enclosure with embedded screw terminal coil according to protection class IP67, CEE 10
- Plug with visual indicator and/or peak voltage suppression
- Electronic timer
- Viton seal is available on request

INSTALLATION

- The valves can be mounted in any position without affecting operation, vertically upright is preferred
- Installation / maintenance instructions are included with each valve
- Spare parts kit and replacement coils are available
- Rubber gasket provided for mounting between valve and header tank
- 6 mounting bolts, nuts and washers (M10) also provided

DIMENSIONS (mm), WEIGHT (kg)

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Weight (kg)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCR353G230</td>
<td>218</td>
<td>32.5</td>
<td>Ø88 1/3</td>
<td>Ø170</td>
<td>-9</td>
<td>-9</td>
<td>4.30</td>
</tr>
<tr>
<td>SCR353G235</td>
<td>216</td>
<td>46</td>
<td>Ø101.5 1/3</td>
<td>Ø170</td>
<td>12</td>
<td>22.5</td>
<td>4.15</td>
</tr>
</tbody>
</table>

*Including coil(s) and connector(s)