Section 2  Proportional Quick Exhaust

OPERATION OF THE PQE

1. The pilot operated regulator and the PPC5C are both fed from a common inlet.

2. The “out” port of the PPC5C sends pressure to the pilot port of the pilot operated regulator and to the “12” end of the 400 Series Quick Exhaust Valve. The secondary pressure of the pilot operated regulator is sent to the output port of the block and it is also sent to the “14” end and inlet of the 400 Series Quick Exhaust Valve.

3. The outlet pressure of the PPC5C along with the memory spring in the 400 Series valve will keep the valve in a closed state as the unit increases pressure.

4. To reduce pressure, drop the PPC5C’s signal. This will lower the pressure on the “12” end of the 400 Series valve. The “14” end of the 400 Series valve now has higher pressure causing a snap-action shifting of the 400 Series valve which will quickly exhaust the downstream pressure to the new selected pressure.

Note: Below 20 psi, the P.Q.E. has reduced exhausting capabilities due to the memory spring in the 400 Series Quick Exhaust Valve and modifications to the pilot operated regulator.
**Operational Benefits**

1. Accurate pressure control.
2. Fast response.
3. High flow.
4. Quick exhaust function.
5. Unaffected by change in line pressure.
7. Designed to meet Nema 4 specifications.
8. Analog control.
9. Analog or TTL feedback.
10. Closed loop system.

**Regulator size (series)**

<table>
<thead>
<tr>
<th>Port size</th>
<th>Flow (Max) [Cv/Nl/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; - 3/4&quot;</td>
<td>6.3/6300</td>
</tr>
</tbody>
</table>

**Industries Mounting**

- Analog

---

**How to Order**

**Proportional Quick Exhaust (PPC5C) Series**

- **Type**: Analog
- **Porting**: Bottom Ports
- **Feedback options**: Single Adapter/Ext. Sense (Pressure)
- **Pressure range**: PSI/BAR
- **Pressure reference**: Gage Pressure
- **Overall accuracy**: ± 2.5 % F.S.

**Flow Cv/Nl/min**

- 0.07/70
- 0.09/90
- 0.13/100
- 0.19/150
- 0.29/210
- 0.44/300
- 0.60/400
- 0.85/500
- 1.17/700
- 1.50/1000
- 2.00/1500
- 3.00/2200
- 4.00/3000

**EXAMPLE**

- **PQE65A - AA1C - 9**
- **PPC5C - AGB - AGEA - BBB - CO - 9**

**NOTE**

- PPC5C must be ordered separately. Reference “How to order” for the analog PPC5C.

---

**IMPORTANT! Read Notes Before Ordering**

- For options "O" (no cable), choose electrical connector options “A” through “F” only.

---

Consult “Precautions” page 94 before use, installation or service of MAC Valves.
**PPC TYPE**

Analog, single transducer external sense, bottom O-ring mount

**ELECTRICAL DATA**

Reference PPC5C specifications

**PHYSICAL DATA**

| Connector : | Reference PPC5C specifications |
| Enclosure : | Aluminum, sealed |
| Mounting : | Any plane |
| Ambient temperature range : | 0 to 50°C (32°F to 120°F) |

**DIMENSIONS**

Consult “Precautions” page 94 before use, installation or service of MAC Valves.
Consult "Precautions" page 94 before use, installation or service of MAC Valves.

**Operational Benefits**
1. Accurate pressure control.
2. Fast response.
3. High flow.
4. Quick exhaust function.
5. Unaffected by change in line pressure.
7. Designed to meet Nema 4 specifications.
8. Digital control.
9. Analog or TTL feedback.
10. Closed loop system.

**How to Order**

PQE 65 A - XX X X ( - 9)

**Proportional Quick Exhaust Series 6500**

<table>
<thead>
<tr>
<th>Gage porta regulator</th>
<th>Port size &amp; thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>6500 Series Standard</td>
<td>1/2” NPTF (6500 Series)</td>
</tr>
<tr>
<td>O-ring Mount</td>
<td>3/4” NPTF (6500 Series)</td>
</tr>
<tr>
<td>External Sense</td>
<td>3/4” BSPL (6500 Series)</td>
</tr>
<tr>
<td></td>
<td>1/2” BSPT (6500 Series)</td>
</tr>
<tr>
<td></td>
<td>3/4” BSPT (6500 Series)</td>
</tr>
</tbody>
</table>

**Regulator size (series)**
- 6500 Series

**Sense**
- Standard

**Gage port on regulator**
1. No gage - gage port plugged
2. Include gage, filled *(but gage separately)*

**Pressure range (PSI/BAR)**
- 100/6.7
- 60/4
- 30/2
- 50/3.3
- 75/5
- 117/7.8
- 150/10
- 90/6

**Gage Pressure Reference**
- ± 2.5 % F.S.

**Flow Cv/Nl/min**
- 0.07/70
- 0.09/90
- 0.07/70
- 0.09/90
- 0.07/70
- 0.09/90
- 0.07/70
- 0.09/90

**Signal & Connector Options (See Below)**

**Command Signal**
- 4 Bit Sinking/pos.
- 4 Bit Sourcing/pos.
- 8 Bit Sinking/pos.
- 8 Bit Sourcing/pos.
- Single Action
- Double Action/Ext. Sense (Pressure)

**Analog Monitor Signal**
- 0-10V

**Logic Monitor Signal**
- None
- TLL [Low = Pressure Achieved]
- TLL [High = Pressure Achieved]
- 24V [Low = Pressure Achieved]
- 24V [High = Pressure Achieved]

**Electrical Connector**
- 6 Pin Mini
- 7 Pin Mini
- 8 Pin Mini
- 9 Pin Mini
- 14 Wire

**Cable Length**
- 0 Cable
- 3 ft/0.9m
- 6 ft/1.8m
- 12 ft/3.6m

**Revision**
- PQE 65 A - XX X X ( - 9)

**EXAMPLE:**

PPC5C DGB - AGeV - AAA - 9

6500 Series style regulator, standard sense, no gage, 1/2” NPTF ports.
Digital PPC, bottom o-ring mount, external sense, 100 psi range, gage reference, 2.5% accuracy, with .07 flow fill and exhaust, 4 bit sinking/positive command signal, no analog or logic signal, 6 pin mini connector, no cable.

**NOTE:**
PPC5C must be ordered separately.
Reference "How to order" for the digital PPC5C.
### PPC TYPE
Digital, single transducer external sense, bottom O-ring mount

### DIMENSIONS

![Diagram of MAC Valve Series 6500](image)

### PHYSICAL DATA

<table>
<thead>
<tr>
<th>Connector</th>
<th>Reference PPC6 specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure</td>
<td>Aluminum, sealed</td>
</tr>
<tr>
<td>Mounting</td>
<td>Any plane</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>0 to 50°C (32°F to 120°F)</td>
</tr>
</tbody>
</table>

### ELECTRICAL DATA

Reference PPC6 specifications

### PNEUMATIC DATA

<table>
<thead>
<tr>
<th>Inlet pressure</th>
<th>120 PSI max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluids</td>
<td>Air or inert gases</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required. However, if used, a medium aniline point oil is recommended</td>
</tr>
<tr>
<td>Filtration</td>
<td>40 micron</td>
</tr>
<tr>
<td>*Output pressure</td>
<td>20 to 100 PSI</td>
</tr>
<tr>
<td>Overall accuracy</td>
<td>2.5% full scale</td>
</tr>
<tr>
<td>All ports</td>
<td>1/2, 3/4, NPTF, BSPPL, BSFTR</td>
</tr>
<tr>
<td>Flows</td>
<td></td>
</tr>
<tr>
<td>Output flow</td>
<td>1/2&quot; ports: Cv 5.3 3/4&quot; ports: Cv 6.3</td>
</tr>
<tr>
<td>Exhaust flow</td>
<td>1/2&quot; ports: Cv 1.5 3/4&quot; ports: Cv 1.5</td>
</tr>
</tbody>
</table>

### PORT SIZE OUTPUT VOLUME REQUIREMENTS

<table>
<thead>
<tr>
<th>Port size</th>
<th>Output volume at end of output pipe</th>
<th>Minimum length of output pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>100 Cu. in. and larger</td>
<td>78&quot;</td>
</tr>
<tr>
<td></td>
<td>50 to 99 Cu. in.</td>
<td>100&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>100 Cu. in. and larger</td>
<td>60&quot;</td>
</tr>
<tr>
<td></td>
<td>50 to 99 Cu. in.</td>
<td>90&quot;</td>
</tr>
</tbody>
</table>

* The quick exhaust portion of the PQE was not designed to be used at pressures below 20 PSIG. The PQE will exhaust below 20 PSIG but at a very reduced rate. Also, the minimum pressure change (from higher to lower) that will allow the quick exhaust to function is 3 PSIG.

** This is the minimum output volume and output piping required to keep the unit stable. Configurations below these minimums should be tested on a case by case basis.

### REFERENCE PPC5C SPECIFICATIONS

** consultation is required before use, installation or service of MAC Valves.**