### Pressure Reducing Valves

#### PILOT OPERATED REDUCING

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Typical Cartridge Model Code</th>
<th>Nominal Control</th>
<th>Adjustment Range</th>
<th>Seal</th>
<th>Installation Torque (lb. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 GPM</td>
<td>PBBB – LAN</td>
<td>L Standard Screw</td>
<td>100 - 3000 psi</td>
<td>N</td>
<td>Buna-N</td>
</tr>
<tr>
<td>10 GPM</td>
<td>PBDB – LAN</td>
<td>C Tamper Resistant</td>
<td>150 - 4500 psi</td>
<td>V</td>
<td>Viton</td>
</tr>
<tr>
<td>20 GPM</td>
<td>PBFB – LAN</td>
<td>K Handknob</td>
<td>50 - 1500 psi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 GPM</td>
<td>PBHB – LAN</td>
<td></td>
<td>60 - 800 psi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80 GPM</td>
<td>PBJB – LAN</td>
<td></td>
<td>60 - 400 psi</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjustment Range Options:
- All are standard set at 200 psi.
- Maximum pressure differentials for spring ranges: A and B are 3000 psi, N and Q are 2000 psi.
- W is 5000 psi inlet pressure.

** See page 244 for information on Control Options

Customer may specify pressure setting.

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**OPTION ORDERING INFORMATION**

Full Adjustment 5 Turns

Nominal Capacity | Control** | Adjustment Range | Seal
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B 5 GPM*</td>
<td>L Standard Screw</td>
<td>A 100 - 3000 psi</td>
<td>N Buna-N</td>
</tr>
<tr>
<td>D 10 GPM</td>
<td>C Tamper Resistant</td>
<td>W 150 - 4500 psi</td>
<td>V Viton</td>
</tr>
<tr>
<td>F 20 GPM</td>
<td>K Handknob</td>
<td>B 50 - 1500 psi</td>
<td></td>
</tr>
<tr>
<td>H 40 GPM</td>
<td></td>
<td>N 60 - 800 psi</td>
<td></td>
</tr>
<tr>
<td>J 80 GPM</td>
<td></td>
<td>Q 60 - 400 psi</td>
<td></td>
</tr>
</tbody>
</table>

** See page 244 for information on Control Options

* Minimum setting 75 psi on all ranges.

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**Cartridge Dimensions**

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Cavity</th>
<th>Capacity</th>
<th>Installation Torque (lb. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T - 163A</td>
<td>1.22</td>
<td>5 GPM</td>
<td>25/30</td>
</tr>
<tr>
<td>T - 11A</td>
<td>1.38</td>
<td>10 GPM</td>
<td></td>
</tr>
<tr>
<td>T - 2A</td>
<td>1.38</td>
<td>20 GPM</td>
<td></td>
</tr>
<tr>
<td>T - 17A</td>
<td>1.81</td>
<td>40 GPM</td>
<td></td>
</tr>
<tr>
<td>T - 19A</td>
<td>2.50</td>
<td>80 GPM</td>
<td></td>
</tr>
</tbody>
</table>

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**Inlet**

- Reduced Pressure
- Drain
- Locating Shoulder
- Inlet
- Reduced Pressure

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**Cartridge Model Code**

- PBBB – LAN
- PBDB – LAN
- PBFB – LAN
- PBHB – LAN
- PBJB – LAN
Applications
- Pilot operated reducing cartridges reduce high primary pressure at port 2 (inlet) to a controlled lower pressure at port 1. Port 3 is the pilot drain connection and pressure in this port is directly additive to the reduced pressure setting.
- Provide a controlled lower pressure to a secondary circuit function.
- Provide accurate reduced pressure control for clamp and hold down circuits.

Design Concepts and Features
- Low hysteresis for accurate pressure regulation.
- High flow capacity relative to physical size.
- Low pilot flow (from 7 to 20 in.3/min.) dependent on frame size.
- Incorporates a 150 micron screen to protect main stage control orifice from contamination.
- Multiple spring ranges for optimum adjustment control.
- See page 34 for maximum operating pressure differentials for individual spring ranges.

Note: Sun also offers reducing/relieving cartridges (PP*B) that are functionally interchangeable with reducing cartridges. However, with the reducing/relieving valves it is necessary to have a full flow capacity return passage from port 3. See page 42 for further details.

General Application Requirements
- Operating Temperature Range: Buna-N seals -50°F to 200°F, Viton seals 0°F to 250°F.
- Viscosity Range: 60-3000 SUS.
- Fluid Contamination Level: ISO 4406 18/15 or better; Recommend β10 ≥ 75 to achieve ISO 18/15 or better in most systems.
- Factory Pressure Setting for cartridge is established at zero flow rate.