Pressure Reducing Valves

PILOT OPERATED REDUCING

Capacity | Typical Cartridge Model Code | Cartridge Dimensions | Installation Torque (Nm)
---|---|---|---
20 L/min. | PBBB – LAN T - 163A | a | b | c | K | 31 | 19.1 | 65 | 67 | 71 | 35/40
40 L/min. | PBDB – LAN T - 11A | 34.9 | 22.2 | 64 | 66 | 70 | 40/50
80 L/min. | PBFB – LAN T - 2A | 34.9 | 28.6 | 72 | 74 | 78 | 60/70
160 L/min. | PBHB – LAN T - 17A | 46 | 31.8 | 84 | 86 | 90 | 200/215
320 L/min. | PBJB – LAN T - 19A | 63.5 | 41.3 | 100 | 104 | 107 | 465/500

** Nominal Control Adjustment Range Seal

Full Adjustment 5 Turns

Nominal Capacity | Control** | Adjustment Range | Seal
---|---|---|---
B 20 L/min. | L Standard Screw | A 7 - 210 bar | N Buna-N
D 40 L/min. | C Tamper Resistant | W 10 - 315 bar | V Viton
F 80 L/min. | K Handknob | B 3.5 - 105 bar
H 160 L/min. | | | N 4 - 55 bar
J 320 L/min. | | | G 4 - 25 bar

Adjustment Range Options:
- All are standard set at 14 bar.
- Maximum pressure differentials for spring ranges:
  - A and B are 210 bar.
  - N and Q are 140 bar.
- W is 350 bar inlet pressure.
- *Minimum setting 5 bar on all ranges.
- Customer may specify pressure setting.

** See page 244 for information on Control Options
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 .15 to .35 L/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 (P**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.

Performance Curves

<table>
<thead>
<tr>
<th>Performance Curves</th>
<th>No Load Pressure Drop with Valve Full Open</th>
<th>Regulated Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB**B-L’N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>15</td>
<td>150</td>
</tr>
<tr>
<td>Q</td>
<td>10</td>
<td>150</td>
</tr>
<tr>
<td>Q = L/min.</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>P = bar</td>
<td>10</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

General Application Requirements
- Operating Temperature Range: Buna-N seals -45° C to 90° C, Viton seals -15° C to 120° C.
- Viscosity Range: 10-600 centistokes.
- 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.