AIR-OIL INJECTOR BLOCK
Oil Streak Generating, Mixing and PDI systems
General

The Air-Oil Injector Block Assembly is available with one to eight Positive Displacement Injectors (PDI). Each outlet has an individual air flow needle valve. These blocks deliver a precise amount of oil into a controlled air flow. The air propels the oil droplets along the inside wall of the small bore tubing until it reaches the lubrication point in one continuous uninterrupted oil streak.

Application

PDI’s for Air-Oil systems are available in seven outputs to cover many types of applications. Note: For critical high-speed applications using ceramic and steel roller bearing elements, the smaller output rate of 0.01 and 0.025 cc/cycle are usually recommended. Operation of the injectors occurs during an alternating pressure and relief cycle controlled by the lubricator.

Technical Data

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Typical Input Air Pressure</th>
<th>Maximum Pressure</th>
<th>Minimum Pressure</th>
<th>Accuracy</th>
<th>Oil Pressure to Operate</th>
<th>Oil Pressure to Relieve</th>
<th>Oil Viscosity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Input Air Pressure</td>
<td>63-87 psi (4.3-6 bar)</td>
<td>125 psi</td>
<td>50 psi</td>
<td>±20% (±5% for High Accuracy)</td>
<td>Min 210 psi (15 bar), Max 500 psi (34 bar)</td>
<td>Min 0, Max 30 psi (2 bar)</td>
<td>ISO VG32 / 142SSU to ISO VG100 / 465SSU</td>
</tr>
</tbody>
</table>

Block Cross Section

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Oil Inlet (from lubricator)</td>
</tr>
<tr>
<td>2</td>
<td>Positive Displacement Injector (self-contained cartridge for easy servicing)</td>
</tr>
<tr>
<td>3</td>
<td>Removable Plug</td>
</tr>
<tr>
<td>4</td>
<td>Adjustable Needle Valve* (Air)</td>
</tr>
<tr>
<td>5</td>
<td>Air/Oil Block</td>
</tr>
<tr>
<td>6</td>
<td>Air Inlet</td>
</tr>
<tr>
<td>7</td>
<td>Air/Oil Mix Delivery Tail Tube</td>
</tr>
</tbody>
</table>

*Not required with High Flow

How to Order

Air-Oil Block Type

- AVE — Air-Oil Block NPT Inlets
- AV — Air-Oil Block BSPP Inlets
- AVH — Air-Oil Block BSPP Inlets, High Accuracy
- 32945 — Air-Oil Block NPT Inlets, 1/8NPT Outlets

Injector Outlets

- B — 3 to 8 of injectors in assembly (Use a dash “-” for series 32945)

Delivery Outputs

- G — 0.01cc / cycle
- H — 0.025cc / cycle
- B — 0.06cc / cycle
- C — 0.10cc / cycle
- D — 0.20cc / cycle
- E — 0.30cc / cycle
- F — 0.40cc / cycle
- X — Blank

Refer to the following documents:

- Datasheet #35721: Oil Streak Mixing Unit
- Datasheet #35720 Oil Streak Generating Unit
- Datasheet #35719: Oil Streak Sensing Unit
- Datasheet #35465: SureFire PDI Lubricator
- Datasheet #20349: Airmatic PDI Lubricator
Dimensional Schematics

Air Flow Data per Outlet
Outlet air flow vs. needle valve position.

<table>
<thead>
<tr>
<th>Air Pressure @ Inlet</th>
<th>1/6 Turn (Open)</th>
<th>1/2 Turn (Open)</th>
<th>1 Turn (Open)</th>
<th>2 Turns (Open)</th>
<th>4 Turns (Open)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 psi (3.4 bar)</td>
<td>0.61 liter/min</td>
<td>3.8 liter/min</td>
<td>11.8 liter/min</td>
<td>27.3 liter/min</td>
<td>51.7 liter/min</td>
</tr>
<tr>
<td></td>
<td>(1.3 ft³/hour)</td>
<td>(8 ft³/hour)</td>
<td>(25 ft³/hour)</td>
<td>(58 ft³/hour)</td>
<td>(110 ft³/hour)</td>
</tr>
<tr>
<td>60 psi (4.1 bar)</td>
<td>0.80 liter/min</td>
<td>4.7 liter/min</td>
<td>14.1 liter/min</td>
<td>32.7 liter/min</td>
<td>58.8 liter/min</td>
</tr>
<tr>
<td></td>
<td>(1.7 ft³/hour)</td>
<td>(10 ft³/hour)</td>
<td>(30 ft³/hour)</td>
<td>(70 ft³/hour)</td>
<td>(125 ft³/hour)</td>
</tr>
<tr>
<td>80 psi (5.5 bar)</td>
<td>1.30 liter/min</td>
<td>6.6 liter/min</td>
<td>18.8 liter/min</td>
<td>42.3 liter/min</td>
<td>75.2 liter/min</td>
</tr>
<tr>
<td></td>
<td>(2.7 ft³/hour)</td>
<td>(16 ft³/hour)</td>
<td>(40 ft³/hour)</td>
<td>(90 ft³/hour)</td>
<td>(160 ft³/hour)</td>
</tr>
</tbody>
</table>

Note: With a 1.2 meter long tail tube, 2.7 mm inside diameter

Adjusting the Needle Valves

Turning the Needle Valve clockwise will decrease the flow rate while turning it counter clockwise will increase the flow rate. The flow rate is adjusted on the Air-Oil Block using the needle valves. You may adjust the flow rate of an individual outlet or multiple outlets, depending on your system.

Note: To adjust the needle valve a short slotted head screw driver is required.

Application Tip:
Once the adjustment is finalized, seal the needle valve with sealant or wax type material to determine if the valve was tampered with.

AV & 32945:
1/8NPT oil inlet, 1/4NPT air inlet.

AV & AVH:
1/8BSPP oil inlet, 1/4BSPP air inlet.

*Excludes 32945 series(1/8NPT outlets)
**Not used with High Flow
Accessories

Coiled Tubing

Tubing is normally mounted in the horizontal position or at a slight incline. Coils help to stretch out deliveries in short tubes for continuous lubricant flow.

During shutdown, a small volume of oil collects at the bottom of each loop for faster delivery during start up.

Tubing Specifications:

<table>
<thead>
<tr>
<th>Part #</th>
<th>No. Of Coils</th>
<th>X (mm)</th>
<th>Y (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26263-5</td>
<td>5</td>
<td>25</td>
<td>31.5</td>
</tr>
<tr>
<td>26263-7</td>
<td>7</td>
<td>52</td>
<td>59</td>
</tr>
</tbody>
</table>

Standard Straight Tubing

Standard Tube For Connecting to Lube Point:

<table>
<thead>
<tr>
<th>Part #</th>
<th>Outside Diameter</th>
<th>Inside Diameter</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>4N2.5W</td>
<td>4mm (5/32&quot;)</td>
<td>2.5mm</td>
<td>Clear Polyurethane</td>
</tr>
<tr>
<td>8N3T</td>
<td>6mm</td>
<td>4mm</td>
<td>Clear Polyurethane</td>
</tr>
<tr>
<td>29635</td>
<td>1/4&quot;</td>
<td>4.3mm</td>
<td>Clear Polyurethane</td>
</tr>
</tbody>
</table>

Nozzles

Offered in various sizes, Nozzles normally produce a round spray pattern. Typically, this nozzle configuration is suitable for anti friction bearings and other applications where precise wetting is required. Nozzle orifice size and air pressure determine the shape and velocity of the air and oil mix.

Nozzle Specifications:

<table>
<thead>
<tr>
<th>Part #</th>
<th>T1</th>
<th>T2*</th>
<th>L1 (mm)</th>
<th>L2 (mm)</th>
<th>D1 (mm)</th>
<th>D2 (mm)</th>
<th>H (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27107-1</td>
<td>1/8 NPT</td>
<td>S5/16-24</td>
<td>4</td>
<td>20</td>
<td>2.5</td>
<td>6</td>
<td>11.1</td>
</tr>
<tr>
<td>27107-2</td>
<td>1/8 NPT</td>
<td>S5/16-24</td>
<td>4</td>
<td>20</td>
<td>1.5</td>
<td>6</td>
<td>11.1</td>
</tr>
<tr>
<td>27107-3</td>
<td>1/8 NPT</td>
<td>S5/16-24</td>
<td>10</td>
<td>26</td>
<td>2.0</td>
<td>5</td>
<td>11.1</td>
</tr>
<tr>
<td>27107-4</td>
<td>1/8 BSPT</td>
<td>M8X1</td>
<td>4</td>
<td>20</td>
<td>2.5</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>27107-5</td>
<td>1/8 BSPT</td>
<td>M8X1</td>
<td>4</td>
<td>20</td>
<td>1.5</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>27107-6</td>
<td>1/8 BSPT</td>
<td>M8X1</td>
<td>10</td>
<td>26</td>
<td>2.0</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

Replacement Parts

Injectors*:

| + 26903-01 |
| + 24209-025 |
| + 24209-03  |
| + 24209-06  |
| + 24209-10  |
| + 24209-20  |
| + 24209-30  |
| + 24209-40  |

* add an “H” to part number for AVH injectors

Plug Kit:

| + 32132 |

Do not use standard plugs when less outlets are required. Use the 32132 Plug Kit and remove the PDI injector. Otherwise excess oil will build up internally and over lubricate the other outlets.

Attention

Coiled tubing extends tubing length in short line runs to stretch out lubricant deliveries.

Attention

*Required 4mm Tube Connection Fittings for Nozzles:

5/16-24 Female: 81371 comp bushing + B8272 comp sleeve
MBX1 Female: 15326 comp bushing + B8272 comp sleeve
Innovators of engineered lubrication technology since 1872

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