Air-Oil Tanks

Features and Benefits
- Operation to 150 psi
- Single tank units
- Double tank units, save space in two direction control systems
- Black anodized heads
- Tapped mounting holes in top and bottom heads
- Large flow ports
- Fill port on top
- Drain port on bottom
- Brass baffle plates and internal parts
- Baffles, top and bottom, help prevent fluid aeration

- Choice of 1-1/4", 2" and 4" I.D. tanks
- Tank lengths to your requirements
- No sight tubes or gauges
- Translucent fiberglass tube provides full visibility of the fluid at all times. You can see when fluid levels are too low or too high. You can also see if there is air or foam in the fluid. (-15°F to + 200°F)
- Custom molded Buna-N tube seals provide both I.D. and face sealing for a positive, no leak assembly
- Tie rods of plated, high strength threaded rod
- Aluminum tie rod cover tubes control the "H" dimension and provide controlled compression of tube seals. They also provide a clean appearance.
- Plated tie rod nuts

Air-Oil System Notes
1. The best control is achieved by installing the speed control valves so that the fluid being forced out of the cylinder is being controlled. See the circuits on page 9.4.
2. The piping between the cylinder and the speed controlling valve should be rigid enough to maintain the required rigidity of the system.
3. It is best to mount the tanks so that the bottoms of the tanks are higher than the cylinder. Cylinder ports should be up with piping running as straight as possible to the tanks. This aids in purging the cylinder of air, by allowing the air to rise through the piping and into the tank where it will dissipate.
4. The highest fluid level should be kept reasonably near the top baffle to avoid excessive air usage, providing the quickest cycle reversal, and to allow for possible fluid loss.
5. If the fluid levels in the tanks unbalance, the fluid is bypassing the cylinder's piston seal. This can occur in a new cylinder with U-Cups designed for air service or side loading on the piston rod. In old systems the bypass can be a result of seal and cylinder wear, seal shrinkage, and many other reasons. See circuits on page 9.4 showing crossover valve for tank balancing.

These units, with their many unique and attractive features, provide the ultimate for those systems that require hydraulic-type (precision, smooth, and rigid) cylinder control from shop air.

Air-oil systems can provide the smoothness and rigidity of a hydraulic system without the inherent high costs and space consuming pump, motor, tank, relief valve, and other components required for a noisy hydraulic system. They may also be used as storage tanks in booster systems, see page 6.11.

Fabco-Air’s unique Air-Oil tanks are available in single tank and space-saving double tank versions with bore (I.D.) sizes of 1-1/4", 2" and 4" to suit all applications.

**Single Tank Units** are used when hydraulic control of the cylinder is required in one direction only. If there is any question as to the integrity of the piston seal, a double tank is recommended. **Single Tank Units** are also used as fluid storage tanks for boosters, hydraulic shock options, and other applications.

**Double Tank Units** are used when hydraulic control of the cylinder is required in both directions. The one-piece heads that hold both tanks simplify mounting and save space.

Specifications subject to change without notice or incurring obligation
Tank Selection

Step 1 Calculate work cylinder volume in cubic inches. Area x Stroke = Volume.

Step 2 Add 10% to 40% to the volume for an operating margin based on system speed and level of maintenance. The higher the speed and the lower the maintenance the higher the operating margin should be.

Step 3 From the “Useable Oil Capacity” chart, select the Bore and Height combination that provides a volume equal to, or greater than, the calculated volume with operating margin. Base your final selection on a combination of economics, available space, port size (system speed), and operating margin.

Example

System: 3” Bore x 6” Stroke cylinder with oil on both ends, running at low speed and well maintained.

Step 1 Volume of 3” Bore = 7.07 sq. in. Area x Stroke = 42.42 cu. in. Volume

Step 2 42.42 cu. in. Volume + 10% operating margin = 46.66 cu. in. with operating margin

Step 3 Choices: DAO - 4 x 11 or DAO -2 x 23

How to Order

1 Specify the Series
2 Specify the Tank Bore
3 Specify the Tank Height, “H”
4 Specify Options

Examples

DAO - 4 x 30 - V  Double tank, 4” bore, “H” = 30” (263 cu. in. capacity), Viton seals

SAO - 1-1/4 x 8  Single tank, 1 1/4” bore, “H” = 8” (4 cu. in. capacity)
Air-Oil Tanks

**Single Tank Unit, SAO**

- **P, NPT Flow Port**
- **Q, NPT Flow Port**
- **M Threaded Rod**
- **1/4-20 x .50 Dp. Mounting Holes 2 Places**
- **See page 9.2**
- **Threaded Rod Extension from Head. Also see Options. Extended Tie Rods, on page 9.2**
- **TOP 150 PSI MAX**
- **Label on Front**

**Double Tank Unit, DAO**

- **P, NPT Fill Port 2 Places**
- **M Threaded Rod**
- **1/4-20 x .50 Dp. Mounting Holes 4 Places**
- **See page 9.2**
- **Threaded Rod Extension from Head. Also see Options. Extended Tie Rods, on page 9.2**
- **TOP 150 PSI MAX**
- **Label on Front**

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**Tie Rod Pattern**

**SAO –1-1/4, SAO –2, SAO –4**

**DAO –1-1/4 & DAO –2**

**DAO –4**

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**Standard Specifications**

**Single Tank Units**

**Standard Specifications**

- **Q, NPT Flow Ports**
- **Bore 1-1/4 2 4**
- **Vol./In. 1.22 3.14 12.56**
- **A 4.75 7.50 10.75**
- **B 2.00 3.00 5.25**
- **C 0.50 0.75 1.00**
- **E 0.38 0.50 1.88**
- **F 4.38 7.00 8.88**
- **G 1.31 2.13 2.63**
- **H See page 9.2**
- **J 3.44 5.38 8.13**
- **K 0.27 0.38 0.50**
- **L 0.22 0.33 0.43**
- **M 1/4-20 3/8-16 1/2-13**
- **P 1/8 1/8 1/4**
- **Q 1/8 1/4 1/2**
- **R 0.25 0.38 0.69**
- **S 1.50 2.25 3.88**
- **T 0.25 0.50 0.69**
- **U 2.13 3.25 3.88**

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### One Speed

Single Air-Oil Tank and flow control give hydraulic control, one speed, one direction with rapid reverse.

Can be used for Multi-Power® Cylinder and Multi-Power® Air Press with Option -HS. See page 5.4 and catalog #FP-16.

### Two Speed

Double Air-Oil Tanks and flow controls give hydraulic control, one speed, each direction.

Can be used for Multi-Power® Cylinder and Multi-Power® Air Press with Option -HS. See page 5.4 and catalog #FP16.

### Two Speed Stop & Hold

Double Air-Oil Tanks with shut-off valves & needle valve provide:

1. Stop and hold in either direction at any point in cylinder travel.
2. Choice of rapid or control rate in either direction at any point of cylinder travel.

### Two Speed & Shock Control

Single Air-Oil Tank with sequence, needle and shut-off valves give:

1. Rapid extend stroke.
2. Automatic switch to controlled rate when resistance is met and pressure builds up.
3. Fluid catches cylinder when built-up forces are suddenly released (such as in a punching operation), thus controlling the shock that could otherwise occur.
4. Automatic return to rapid rate on return stroke.

**Can be used for Multi-Power® Cylinder and Multi-Power® Air Press with Option -HS. See page 5.4 and catalog # FP16.**