



Maintaining Your Equipment

Ensure a longer life span of your equipment

Hydraulic Fluids

- Use only BVA Hydraulic Oil P/N's; HV155 or HV685 for pumps and cylinders.

Air Line Lubricants

- Use Class 1 Turbine Oil (ISO VG32) for Air Line Lubricant

Hydraulic and Pneumatic Filtration

- Hydraulic fluid must be kept clean, cool and free of water.
- Use Hydraulic Filtration to provide fluid which meets ISO 17/15/12 cleanliness levels.
- Air Line Filtration for solid particulate contamination removal: Use BVA P/N; FRL-145, 5uM Pneumatic Filter.
- Air Line Water Removal; Use BVA P/N; AD-145, Ambient Dryer.

Proper Operation of Equipment

- Refer to individual Product Owner's Manuals and BVA Catalogs for general information, specifications, safety, set up, operation, maintenance, trouble shooting, storage and warnings for all BVA products.

Formulas

Key to Measurements			
Weight:		Length	
1 pound (lb.)	=0.4536 kg	1 in	=25.4 mm
1 kg	=2.205 lbs	1 mm	=0.039 in
1 ton (short, US)	=2,000 lbs	1 in ²	=6.452 cm ²
1 ton (metric)	=2,205 lbs	1 cm ²	=0.155 in ²
Volume:		Pressure:	
1 in ³	=16.387 cm ³	1 psi (lb/in ²)	=0.69 bar
1 cm ³	=0.061 in ³	1 bar	=14.5 psi
1 liter	=61.02 in ³	1 kPa	=0.145 psi
	=0.264 gal(US)		
1 gal (US, liquid)	=3.785 liter	Temperature:	
	=231 in ³	0°F	=(0°C x 1.8) + 32
	=3,785 cm ³	0°C	=(0°F - 32) ÷ 1.8

Cylinder Plunger Speed

$$\text{Formula} \rightarrow V = \frac{A}{Q} \times 60$$

$$\text{Cylinder Plunger Speed (sec/cm}^2\text{)} = \frac{\text{Cylinder Effective Area (cm}^2\text{)}}{\text{Pump Flow Rate (cm}^3\text{/min)}} \times \frac{60 \text{ (sec)}}{1 \text{ (min)}}$$

Force

$$\text{Formula} \rightarrow F = P \times A$$

$$\text{Force (kg)} = \text{Hydraulic Working Pressure (kg/cm}^2\text{)} \times \text{Cylinder Effective Area (cm}^2\text{)}$$

Cylinder Oil Capacity

$$\text{Formula} \rightarrow C = A \times L$$

$$\text{Oil Capacity (cm}^3\text{)} = \text{Cylinder Effective Area (cm}^2\text{)} \times \text{Cylinder Stroke (cm)}$$

1/4" Hose Oil Capacity

$$\text{Formula} \rightarrow C = \frac{\text{Internal Diameter (mm}^2\text{)}}{4} \times \pi \times \text{Length of Hose (m)}$$

$$\text{Oil Capacity (cm}^3\text{)} = 33 \times \text{Length of Hose (m)}$$

3/8" Hose Oil Capacity

$$\text{Formula} \rightarrow C = \frac{\text{Internal Diameter (mm}^2\text{)}}{4} \times \pi \times \text{Length of Hose (m)}$$

$$\text{Oil Capacity (cm}^3\text{)} = 72 \times \text{Length of Hose (m)}$$

Cylinder Effective Area

$$\text{Formula} \rightarrow A = \pi \times \frac{D^2}{4}$$

$$\text{Cylinder Effective Area} = \pi \times \frac{\text{(Cylinder Bore Diameter)}^2}{4}$$

$$\pi = 3.14159265359$$