

## Technical Information for Waterjetters



### Units of Measurement - Conversion

From	To	Multiply by	From	To	Multiply by
Meters	Feet	3.281	Bar	Pounds/Sq In	14.5
Feet	Meters	.3048	Pounds/Sq In	Bar	.0689
Millimeters	Inches	.0394	Kilograms	Pounds (Mass)	2.205
Inches	Millimeters	25.4	Pounds (Mass)	Kilograms	.4536
Liters/min	GPM (US)	.2642	Newtons	Pounds (Force)	.2248
Liters/min	GPM (Brit)	.2200	Pounds (Force)	Newtons	4.448
GPM (US)	Liters/min	3.785	Kilowatts	Horsepower	1.341
GPM (US)	GPM (Brit)	.8327	Horsepower	Kilowatts	.7457
GPM (Brit)	Liters/min	4.546			
GPM (Brit)	GPM (US)	1.201			

### Fluid Flow Formulas

**Q = Flow in gpm**

$$Q = 29.92 \times d^2 \times P^{1/2} \times Cd$$

**V = Velocity in ft/sec**

$$V = 12.186 \times P^{1/2} = Cd \times .4085 \times Q / d^2$$

**P = Pressure in psi**

$$P = .00112 \times Q^2 / (d^4 \times Cd^2)$$

**Hp = Power in horsepower**

$$Hp = .0174 \times d^2 \times P^{3/2} \times Cd = P \times Q / 1714$$

**Cv = Flow Coefficient**

$$Cv = Q / \Delta P^{1/2} \approx 53 \times (D^{2.5} / L^{1/2})$$

**ΔP = Pressure Drop in psi**

$$\Delta P = (Q / Cv)^2$$

**F = Thrust Force in pounds**

$$F = \pi / 2 \times d^2 \times P \times Cd = .0522 \times P^{1/2} \times Q \approx .0018 \times (Q / D)^2 \times Cd$$

**ΔT = Temperature Rise in °F**

$$\Delta T = \Delta P / 337.6$$

**L = Tube length in feet**

**D = Tube inside diameter in inches**

**d = Orifice diameter in inches**

**Cd = Discharge Coefficient:**

**Cd = 0.95 for long cone orifice**

**Cd = 0.80 for short cone orifice**

**Cd = 0.65 for drilled steel orifice**