Velocity

$$v_{rect} = \frac{q}{x * y} \qquad v_{circ} = \frac{q * 4}{pi * d^2}$$

v_{rect}	Rectangular velocity	m/s
v_{circ}	Circular velocity	m/s
q	Volume flowrate	m^3/s
x	Length	m
y	Width	m
d	Diameter (int.)	m

Pressure Drop

$$Pd = \left(\frac{1}{-1.8 * \log_{10}\left(\frac{6.9 * vis}{v * d_h} + \left(\frac{k}{3.71 * d} \right)^{1.11} \right)} \right)^2 * \frac{0.5 * rho * v^2}{d}$$

Pd	Pressure drop	Pa/m
v	Velocity	m/s
rho	Density	kg/m^3
d	Diameter (int.)	m
vis	Dynamic viscosity	kg/ms
k	Roughness coefficient	k/m

For pressure drop in rectangular ductwork, the hydraulic diameter is used:

$$d_h = \frac{2 * x * y}{x + y}$$

Load

$$Q = m * C * dT$$

Q	Load	kW
m	Mass flowrate	kg/s
C	Specific heat capacity	kJ/kgK
dT	Flow & return temperature difference	K