Piston area	$A = \frac{D_1^2 \times \pi}{4 \times 100}$	cm^2	$D_1 =$	*Piston Diameter In mm*
Shaft area	$A_{st} = \frac{d_2^2 \times \pi}{4 \times 100}$	cm^2	$d_2 =$	*Shaft diameter In mm*
Annulus area	$A_r = \frac{(D_1^2 - d_2^2) \times \pi}{4 \times 100}$	cm^2	$\pi =$	*3.142*
Stroke volume	$V = \frac{A \times h}{10000}$	litres	$A =$	*Area in cm^2*
Stroke time	$t = \frac{A \times h \times 6}{Q \times 10000}$	seconds	$h =$	*Stroke in mm*
Stroke speed	$v = \frac{h}{t \times 1000}$	m/sec	$Q =$	*Flow in litres/min*
Stroke speed	$v = \frac{Q}{A \times 6}$	m/sec	$t =$	*Stroke time in seconds*
Required flow	$Q_{th} = A \times v \times 6$	litres/min	$v =$	*Stroke speed in metres/sec*
Required flow	$Q_{th} = \frac{V}{t} \times 60$	litres/min	$p =$	*Pressure in bar or kg/cm^2*
Force	$F = \frac{p \times A}{100}$	kN	$V =$	*Stroke volume in litres*
Pressure	$p_{th} = \frac{F}{A} \times 100$	bar	$F =$	*Force in kN*