Hand Held Nozzles	Hose Size	Standard Flow	FL / 100' of Hose
Fog Nozzles N.P. (TFT-100 psi)			
Task force	1 ¾	150 gpm	25 psi
Task force	1 ¾	160 gpm	30 psi
Task force	1 ¾	170 gpm	35 psi
Task force	2 ½	250 gpm	15 psi
Task force	3	300 gpm	9 psi
Solid Stream Nozzles	(NP = 50 psi)		
15/16 inch	1 ¾	180 gpm	40 psi
1 inch	1 ¾	200 gpm	50 psi
1 inch	2 ½	200 gpm	10psi
1 1/8 inch	2 ½	250 gpm	15 psi
1 1/4 inch	2 ½	325 gpm	25 psi
Master Stream Nozzles	**Hose Size**	**Standard Flow**	**FL / 100' of Hose**
Solid Stream Nozzles	(NP = 80 psi)		**2- 2 ½", 2-3" & 5**
1 1/4 inch	2-2 ½", 2-3" or **5**	400 gpm	10 psi, 3 psi & 1.5 psi
1 3/8 inch	2-2 ½", 2-3" or **5**	500 gpm	15 psi, 5 psi & 2 psi
1 1/2 inch	2-2 ½", 2-3" or **5**	600 gpm	20 psi, 7 psi & 3 psi
1 3/4 inch	2-2 ½", 2-3" or **5**	800 gpm	34 psi,13 psi & 5 psi
2 inch	2-2 ½", 2-3" or **5**	1000 gpm	50 psi,20 psi & 8 psi
Fog Nozzle (NP = 100 or 80 psi)	2-2 ½ or **5**	1000 gpm	40 psi & 8 psi
Other Nozzles	**Hose Size**	**Standard Flow**	**FL / 100' of Hose**
Distributor Nozzle (NP = 100 psi)	2 ½"	400 gpm	34 psi
	1 ¾"	200 gpm	50 psi

Appliance Loss	
Wye/Siamese >350 GPM	10 psi
Multiversal	25 psi
Standpipe	25 psi
Aerial Manifold	25 psi
Elevation Pressure	
Per 10 feet	± 5 psi
Per floor	± 5 psi
Do not count the first floor	
Intake Pressure Drop	
Up to 10%	3 like volumes
11% - 15%	2 like volumes
16%-25%	1 like volume
Maintain 20 psi or more at intake	
Single Hose Coefficients	
1 inch booster	150
1 ¾ inch hose	15.5
2 ½ inch hose	2
3 inch hose	.8
4 inch hose	.2
5 inch hose	.08

Formulas And Pumping information

Engine pressure (EP) and Pump discharge pressure (PDP)

EP/PDP = Nozzle pressure (NP) + Total hose friction loss (THFL) + Appliance loss (AL)+ Elevation loss/gain (EP)

Friction Loss formula - $CxQ^2xL = THFL$.

THFL in Siamesed hose lines – Equal lengths and diameters/unequal diameters

Equal lengths and diameters - CxQ^2xL ***or*** divide total flow by number of lines and calculate for one line

Hose configuration	Coefficient
Two 2 ½	.5
Three 2 ½	.22
Two 3 inch with 2 ½ couplings	.2
One 3 inch with 2 ½ couplings, one 2 ½	.3

Unequal lengths/equal diameters

Average lengths and pump to the averaged length pressure

Standpipe operations

In all cases Appliance loss in standpipes is considered 25 psi regardless of flow.

When a standpipe is known to have Pressure reducing valves (PRV's) installed, EP must be based on the *total height* of the standpipe.

Supporting automatic sprinkler systems

- Set PDP to 150 psi
- Standard ½ inch head flows 20 gpm @ 15 psi
- One 1000 gpm pumper can supply 50 heads

Supplying department Aerial Apparatus

General – PDP=NP+EP+AP+THFL

All Department Aerials have flow meters installed