

Pump Pressure Cheat Sheet				
Line	Length	Nozzle	GPM	PDP
1 1/4" Crosslay	150'	Metro I	150	130
1 1/4" Crosslay	200'	Metro I	150	150
Front Bumper	100'	Metro I	150	120
2 1/2" Preconnect	150'	1 1/8 SB	300	80
3" Blitzfire Line	150'	Blitzfire (100PSI)	500	130
Hose Bundle Extended off 2 1/2"	2 1/2"-150' 1 1/4"-100'	Metro 2	250	150

Hydrant Flow Capabilities	
Measure drop from static intake pressure to residual intake pressure.	
10% drop	3 like flows
15% drop	2 like flows
25% drop	1 like flow

**Apparatus Operations**  
**Elevated Master Stream** - (125 + EL (5 PSI per 100' from ground)) = PDP  
**Relay Pumping** - 40 PSI at the engine you are pumping to.  
**FDC (Sprinkler System)** -150 PSI

Master Stream		
1 3/8" tip	<b>80 PSI</b> (at the Nozzle)	502 GPM
1 1/2" tip		608 GPM
1 1/4" tip		814 GPM
2" tip		1063 GPM

Coefficients	
Hose Size	Coefficient
1 1/2"	24
1 1/4"	15.5
2 1/2"	2
3"	0.8
4"	0.2
5"	0.08

Nozzle Pressures	
Master Streams – Smooth Bore	80 PSI
Master Streams – Combination	100 PSI
Smooth Bore Handheld	50 PSI
Metro 1 & 2	100 PSI
Wildland Nozzles	50 PSI

Friction Loss in PSI per 100' Hose						
	150 GPM	250 GPM	500 GPM	600 GPM	800 GPM	1000 GPM
1 1/4"	35	97				
2 1/2"	4.5	12.5				
3"			20	29	51	80
4"			5	7	13	20

**Elevation**  
 5 PSI for every 10' of change in elevation (+/-)  
 Or  
 5 PSI for every story above the first floor

Appliance Friction Loss	
Appliances (Siamese, Wye, Gates)	10 PSI
Only if greater than <b>350 GPM</b>	
Master Stream (Ground Monitor)	25 PSI
Standpipe	25 PSI
Aerial Waterway	25 PSI

**Calculating Pump Discharge Pressure (PDP)**  
 Nozzle Pressure  
 Friction Loss (Hose size 1)  
 Friction Loss (Hose size 2)  
 Elevation +/-  
 + Appliance Loss (only if flow >350 GPM)  
 = Pump Discharge Pressure

**Tender Delivery Rate**  
 TC - Tank Capacity (Gallons)  
 SCT - Shuttle Cycle Time  
 TDR - Tender Delivery Rate  
**TC/SCT = TDR**

**Required Fire Flow Calculations**  
 $(\frac{\text{Length} \times \text{Width}}{3}) \times \text{Percent Involved} = \text{GPM}$

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 $(\frac{\text{Length} \times \text{Width}}{3}) \times \text{Percent Involved} = \text{GPM}$

Unit #	Model	Pump	Tank	Foam	Apparatus Type
13	1996 Pierce Freightliner	1000 GPM	750	15 Gal Class A	Pumper
15	1996 Pierce Freightliner	1000 GPM	750	15 Gal Class A	Pumper
16	1994 Ford F-350 Type 6	125 GPM	300	12 Gal Class A	Type 6 / Wildland
19	2006 Pierce Interface	1000 GPM	750	25 Gal Class A	Type 3 / Pumper
21	2007 Pierce Impel	1750 GPM	2500	20 Gal Class A	Pumper/Tender
22	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
23	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
25	1996 GMC Top Kick Rescue	N/A	N/A	N/A	Rescue
28	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
29	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
30	1989 International	150 GPM	1000	25 Gal Class A	Type 3 / Wildland
31	2009 Ford F-550 Type 6	120 GPM	400	10 Gal Class A	Type 6 / Wildland
48	1997 Pierce Saber	1250 GPM	1000	25 Gal Class A	Pumper
45	2019 Pierce Enforcer	1500 GPM	500	20 Gal Class A	Ladder Truck

**Foam**  
Class A – Run foam system at 0.3%  
Class B – Run foam system at 3%  
Foam Educator – 200 PSI at Educator

Unit #	Model	Pump	Tank	Foam	Apparatus Type
13	1996 Pierce Freightliner	1000 GPM	750	15 Gal Class A	Pumper
15	1996 Pierce Freightliner	1000 GPM	750	15 Gal Class A	Pumper
16	1994 Ford F-350 Type 6	125 GPM	300	12 Gal Class A	Type 6 / Wildland
19	2006 Pierce Interface	1000 GPM	750	25 Gal Class A	Type 3 / Pumper
21	2007 Pierce Impel	1750 GPM	2500	20 Gal Class A	Pumper/Tender
22	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
23	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
25	1996 GMC Top Kick Rescue	N/A	N/A	N/A	Rescue
28	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
29	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
30	1989 International	150 GPM	1000	25 Gal Class A	Type 3 / Wildland
31	2009 Ford F-550 Type 6	120 GPM	400	10 Gal Class A	Type 6 / Wildland
48	1997 Pierce Saber	1250 GPM	1000	25 Gal Class A	Pumper
45	2019 Pierce Enforcer	1500 GPM	500	20 Gal Class A	Ladder Truck

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Foam Educator – 200 PSI at Educator

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15	1996 Pierce Freightliner	1000 GPM	750	15 Gal Class A	Pumper
16	1994 Ford F-350 Type 6	125 GPM	300	12 Gal Class A	Type 6 / Wildland
19	2006 Pierce Interface	1000 GPM	750	25 Gal Class A	Type 3 / Pumper
21	2007 Pierce Impel	1750 GPM	2500	20 Gal Class A	Pumper/Tender
22	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
23	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
25	1996 GMC Top Kick Rescue	N/A	N/A	N/A	Rescue
28	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
29	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
30	1989 International	150 GPM	1000	25 Gal Class A	Type 3 / Wildland
31	2009 Ford F-550 Type 6	120 GPM	400	10 Gal Class A	Type 6 / Wildland
48	1997 Pierce Saber	1250 GPM	1000	25 Gal Class A	Pumper
45	2019 Pierce Enforcer	1500 GPM	500	20 Gal Class A	Ladder Truck

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Foam Educator – 200 PSI at Educator

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15	1996 Pierce Freightliner	1000 GPM	750	15 Gal Class A	Pumper
16	1994 Ford F-350 Type 6	125 GPM	300	12 Gal Class A	Type 6 / Wildland
19	2006 Pierce Interface	1000 GPM	750	25 Gal Class A	Type 3 / Pumper
21	2007 Pierce Impel	1750 GPM	2500	20 Gal Class A	Pumper/Tender
22	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
23	2007 Pierce Impel	1750 GPM	750	20 Gal Class A	Pumper
25	1996 GMC Top Kick Rescue	N/A	N/A	N/A	Rescue
28	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
29	2012 KME Freightliner	500 GPM	2000	N/A	Water Tender
30	1989 International	150 GPM	1000	25 Gal Class A	Type 3 / Wildland
31	2009 Ford F-550 Type 6	120 GPM	400	10 Gal Class A	Type 6 / Wildland
48	1997 Pierce Saber	1250 GPM	1000	25 Gal Class A	Pumper
45	2019 Pierce Enforcer	1500 GPM	500	20 Gal Class A	Ladder Truck

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Class A – Run foam system at 0.3%  
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