

LOS ANGELES FIRE DEPARTMENT HYDRAULIC CALCULATOR

HOSE SIZE	TIP	G .P. M.	NOZZLE PRESSURE	FL per 100'	LENGTH OF HOSE LAYOUT									
					100'	200'	300'	400'	500'	600'	700'	800'	900'	
HANDLINES	1"	Spray	40	100	25	125	150	175	200	225	250	275	300	
	1 1/2"	Spray	80	75	15	90	105	120	135	150	165	180	195	210
		Spray (MC)		75	35	110	145	180	215	250	285			
	1 3/4"	Spray	125	75	25	100	125	150	175	200	225	250	275	300
		Spray (MC)	200	75	50	125	175	225	275	325				
	2"	Spray	200	75	35	110	145	180	215	250	285			
	2 1/2"	Spray (MC)	325	50	25	75	100	125	150	175	200	225	250	275
		1-1/4" ST (MC)	325	50	25	75	100	125	150	175	200	225	250	275
		1-1/4" ST	300	40	20	60	80	100	120	140	160	180	200	220
		1-1/2" ST	530	60	60	120	180	240	300					
MASTER STREAMS	4"	5/8" ST (WB)	105	80										
		Spray (ATM)	350	100	3	103	106	109	112	115	118	121	124	127
		1-1/4" ST	400	80	3	83	86	89	92	95	98	101	104	107
		Spray (ATM)	500	100	5	105	110	115	120	125	130	135	140	145
		1-1/2" ST	600	80	7	87	94	101	108	115	122	129	136	143
		Spray (HF)	660	100	9	109	118	127	136	145	154	163	172	181
		Spray (ATM)	750	100	11	111	122	133	144	155	166	177	188	199
		1-3/4" ST	800	80	12	92	104	116	128	140	152	164	176	188
		2" ST (PM)	950	65	17	82	99	116	133	150	167	184	201	218
		2" ST (WBLP)	1000	80	19	99	118	137	156	175	194	213	232	251
Spray (ATM)	1000	100	19	119	138	157	176	195	214	233	252	271		
LADDERPIPE:		STRAIGHT TIP (PSI)		SPRAY TIP (PSI)		HYDRO-FOAM (PSI)		HIGH RISE: 150 psi (constant) + <u> </u> 5 psi/floor (to the roof) = System Pressure Fire Pump Operating EP = System pressure - 100 psi Fire Pump Failure Pump system pressure & notify IC SPRINKLERS: No fire = 100 psi Fire = 150 psi STANDPIPES: EP = 25 psi (Appliance) + 5 psi/floor = hose lay METRO RAIL RED LINE (F. D. C.): 125 psi						
Pump the following pressures to the shut-off valve at the base of the ladder. Pump an additional 30 psi when static.		1-1/2"	150	350 gpm	140	660 gpm	175							
		1-3/4"	170	500 gpm	160	LTI ONLY - 2" straight tip, 750 & 1000 gpm spray tip.								
		2"	190	750 gpm	180									
				1000 gpm	220									
PORTABLE MONITOR (Max. 950 gpm): 25 psi FL for appliance. Straight Tip: 1-1/2" & 1-3/4" - 80 psi nozzle pressure 2" - 65 psi nozzle pressure - 950 gpm					DISTRIBUTORS: Small = 600 gpm Large = 800 gpm									
HYDRO-FOAM NOZZLE: 660 gpm - 100 psi nozzle pressure JRC: 50 psi constant (add 40 psi for ladderpipe operation), 35 psi FL per 100' of 1-1/2" 1000' max. of 1-1/2" from discharge side of JRC				BARRICADE NOZZLE: NP - 75 psi FL - 10 psi per 100' of 1" hose APPLIANCE - 60 psi GPM - 20										
1-1/2" IN-LINE FOAM EDUCTOR: 125 gpm spray tip always				HELICOPTER FILLING: 95 psi + 5 psi per 100' of 4" (360 gpm) RELAY: 180 psi @ discharge fate (900 gpm) @ 10 psi delivered to next pump PROGRESSIVE HOSELAY: Engine Pressure (psi) per Number of Packs (1) Pack = 165 (2) Packs = 180 (3) Packs = 195 (4) Packs = 210 (5) Packs = 225 (6) Packs = 240 (7) Packs = 255 (8) Packs = 270 (9) Packs = 285 (10) Packs = 300 <i>Pressures do not include grade</i> Add 15 psi for each additional pack over the initial pack										
Hose (from eductor to nozzle): 1-1/2" - 150' constant Pump to eductor inlet: 200 psi 1-3/4" - 250' constant														
FOAM TENDER: Pump 100 psi to the inlets														
Nozzle Most Commonly Used (MC)		Portable Monitor (PM)		Wagon Battery Only (WBLP)		Akron Turbo Master (ATM)		Hydro-Foam Nozzle (HF)						