

HOW TO DETERMINE OUTPUT

P.M. Alternator Output in Watts

Turbine output is determined by 4 factors:

1. Head, or vertical drop from source to turbine nozzle:

Head can be measured with a transit or level and a measuring stick of known length in successive steps. A quick pipe can be assembled from numerous garden hoses and the pressure can be measured with the hoses full of water. This, too, can be done in successive steps.

**0.43 P.S.I. = 1 foot of head:
2.3 feet = 1 psi**

2. Flow in gallons per minute passing through nozzle:

A temporary dam can be built to measure flow. By timing the filling of a container of known volume, the flow can be determined. Care should be taken to not dry up creeks, but to leave enough water to maintain natural environmental balances.

3. Diameter, length, and condition of feeder pipe:

Generally, single nozzle systems with under 2000 feet of feeder pipe require a 2" pipe. A two nozzle system needs a 3" pipe, and a 4 nozzle system requires a 4" pipe. This will keep pipe losses under 25%. Please inquire about specific pipe losses for your site.

4. Turbine efficiency:

Alternator systems are between 30% and 70% efficient.

Feet of Net Head

G/M	25	50	75	100	200	300
3					45	80
6		20	30	45	130	180
10	20	50	80	105	225	350
15	35	85	115	170	350	520
20	65	120	170	240	480	700
30	100	175	270	360	675	1000
50	150	310	450	620	1100	1500
100	300	560	850	1100	1500	
200		725	1050	1300		

Maximum Wattage at Various Voltages

12 volt	24 volt	48 volt
750	1500	1500

Maximum Efficient Flow at Various Heads
Figures in gallons/min
Feet of Net Head

#of nozzles	25	50	75	100	200	300
1	17	25	30	35	50	60
2	35	50	60	70	100	120
3	52	75	90	105	150	
4	70	100	120	140	200	