

NITROUS OXIDE & FUEL JET SIZES

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The following is a **general guide!** All engines and setups will vary a little from these settings for optimum performance. These settings should give a slightly "over rich" and "safe" starting point under most conditions. This slightly over rich setup is preferred for standard production cars although racers with modified engines and ignition timings may wish to tweak them later on.

Remember this is only a **starting** guide! If you want really BIG power boosts you may need to go slightly "richer" still (more fuel) than this or very occasionally leaner. With most healthy engines a small (20% to 30%) increase should be OK with standard ignition timing. If in doubt or it sounds "harsh" then retard it by a few degrees! Should sound smooth, and simply accelerate harder.

Actual power gains have been calculated from known constants and in practice, when dynamometer tested over many years have been extremely close to what is actually measured on a variety of different naturally aspirated vehicles. Turbo cars and bikes are an exception here since the actual power given is often far higher than expected, and turbo lag is all but completely eliminated. In all cases it is best to begin testing with smaller Nitrous & Fuel jets first and then listen carefully and check spark plugs as you go up to your desired bhp increase.

The GREEN fields represent the standard +25 bhp, +40 bhp, +50 bhp, +70 bhp, and +100 bhp systems

Nitrous Jet Size In Millimetres 1mm = 0.03936 inch	Approx Power increase with 800 psi Nitrous Oxide pressure	Fuel Jet (mm) for a 3 BAR or 45 psi (above manifold) fuel injected	Fuel Jet (mm) for a Separate fuel pump & regulator set to 10 psi pressure	Fuel Jet (mm) for a fuel pump & regulator that also feeds carburetors at 3 psi	Motorcycles that use gravity feed from tank No Fuel pump needed	Check! FLOW RATE - Disconnect the pipe from the injector, or from the distribution block (if used) and time how long it takes to fill a 1 Pint container with fuel. With Nitrous Bottle disconnected, and the engine is running, and the Fuel Solenoid energised. (+ / - 5%)
0.30	6.3 bhp	Too small for reliability & practicality	0.30	0.40	-	1 pint fuel delivered 1031 seconds
0.35	8.6 bhp		0.35	0.50	-	1 pint fuel delivered 755 seconds
0.40	11.2 bhp		0.40	0.55	-	1 pint fuel delivered 580 seconds
0.45	14.2 bhp	0.300	0.45	0.60	-	1 pint fuel delivered 457 seconds
0.50	17.5 bhp	0.325	0.50	0.70	-	1 pint fuel delivered 317 seconds
0.55	21.2 bhp	0.350	0.55	0.75	-	1 pint fuel delivered 309 seconds
0.60	25.2 bhp	0.400	0.60	0.80	*1.50	1 pint fuel delivered 260 seconds
0.65	29.5 bhp	0.450	0.65	0.90	*1.70	1 pint fuel delivered 216 seconds
0.70	34.3 bhp	0.475	0.70	0.95	*1.90	1 pint fuel delivered 191 seconds
0.75	39.4 bhp	0.500	0.75	1.00	*2.10	1 pint fuel delivered 162 seconds
0.80	44.8 bhp	0.525	0.80	1.10	*2.10 / no jet	1 pint fuel delivered 144 seconds
0.85	50.6 bhp	0.550	0.85	1.15		1 pint fuel delivered 130 seconds
0.90	56.7 bhp	0.600	0.90	1.20	For 40 bhp upwards a pump is needed so follow RED jet sizing options	1 pint fuel delivered 114 seconds
0.95	63.2 bhp	0.625	0.95	1.30		1 pint fuel delivered 103 seconds
1.00	70.0 bhp	0.675	1.00	1.35		1 pint fuel delivered 92 seconds
1.05	77.1 bhp	0.700	1.05	1.40		1 pint fuel delivered 84 seconds
1.10	84.7 bhp	0.725	1.10	1.50		1 pint fuel delivered 77 seconds
1.15	92.5 bhp	0.775	1.15	1.55		1 pint fuel delivered 71 seconds
1.20	100.2 bhp	0.800	1.20	1.60	Or a pipe from a larger size fuel solenoid to distribution block with a bigger internal bore than 2.5mm could be used instead	1 pint fuel delivered 65 seconds
1.25	109.3 bhp	0.825	1.25	1.70		1 pint fuel delivered 59 seconds
1.30	118.3 bhp	0.875	1.30	1.75		1 pint fuel delivered 55 seconds
1.35	127.5 bhp	0.900	1.35	1.80		1 pint fuel delivered 51 seconds
1.40	137.4 bhp	0.950	1.40	1.90		1 pint fuel delivered 47 seconds
1.50	157.5 bhp	1.000	1.50	2.00		1 pint fuel delivered 41 seconds
1.60	179.2 bhp	1.075	1.60	2.15		1 pint fuel delivered 36 seconds
1.70	202.3 bhp	1.150	1.70	2.30		1 pint fuel delivered 32 seconds
1.80	226.8 bhp	1.200	1.80			1 pint fuel delivered 29 seconds
1.90	252.7 bhp	1.275	1.90	Larger Solenoid		1 pint fuel delivered 26 seconds
2.00	280.0 bhp	1.350	2.00		1 pint fuel delivered 23 seconds	

*Bikes do not necessarily require a pump or a pressure regulator. The "weight" or head of fuel sat in the tank (provided it is above the injection point) and the inlet tracts "low pressure" ensures a reliable flow. The precise amount of flow varies, but these jet sizes generally give a safe and rich mixture. In the case of 2.10 mm fuel jet, no fuel jet is really needed because the actual diameter of the 4mm OD nylon tubing is 2.1mm inside the olive once tightened up and this restriction gives the same or very slightly more fuel flow, as the jet would have done. In some cases without a fuel jet on gravity fed systems, a better final setting will be to fit the next nitrous jet higher, (45 bhp 0.80 mm) instead to give the required mixture. Disregard the fuel delivery rate column here, as this applies only to pumped systems. Before you try this 0.8 mm jet make sure it is running rich enough with the 0.75 mm Nitrous jet first.

Power for any given Nitrous jet:

Nitrous Oxide Jet's bore, in mm squared x the constant 70 = Power increase in bhp at 800 psi Nitrous bottle pressure

Fuel jet Calculations:

At 45 psi - Jet size mm squared x 157 = correct fuel for x power (Nitrous jet diameter in mm minus 33%)

At 10 psi - Jet size mm squared x 70 = correct fuel for x power (Nitrous jet size = Fuel Jet size)

At 3 psi - Jet size mm squared x 38.4 = correct fuel for x power (Nitrous jet plus 35% in mm diameter)

Formula for "time" (T) in seconds to deliver 1 pint of fuel for a given horsepower rating:

T = (the constant) 6500 divided by "Horsepower" or... T = 6500/P (Where P is Power)