ORIFICE THEORY

UNDERSTANDING AN ORIFICE - DIAMETER VERSUS AREA

The flow of an orifice CAN NOT be interpolated by the ratio of the diameter, an .080" diameter orifice does not flow twice that of a .040" (see FLOW THROUGH AN ORIFICE on Page #199).

However flow can be interpolated by the ratio of the area in square inches of an orifice.
The diameter can be converted by the formula:

(radius x radius) x 3.14159 (Pi) = area

The area of .040" is .001257 in^2 and .080" is .00527 in^2 (see below quick reference chart).

$$\frac{.005027\ in^2\ (.080"\ dia.)}{.001257\ in^2\ (.040"\ dia.)} = 3.999\ ratio$$

So an .080" diameter orifice flows 3.999 times more than a .040" diameter orifice.

This fomula can be used for Kinsler's electric enrichment or lean-out valve (see Pages #89 and #168 about this valve).

Example for lean-out valve; If a .116" main jet is good for the basic mid-range and .124" is best when on transbrake, two-step, etc. You can calculate the K-jet for the lean-out by the following:

.012076 in^2 (area of .124") - .010568 in^2 (area of .116") = .001508 in^2 (the difference in area of the two jets).
Go to the chart and find area close to .001508 in^2 which is approximately .044".
This is the jet to install in the lean-out valve.

Dia.	Area	Dia.	Area	Dia.	Area	Dia.	Area	Dia.	Area
.005"	.000020	.041"	.001320	.077"	.004657	.113"	.010029	.150"	.017672
.006"	.000028	.042"	.001385	.078"	.004778	.114"	.010207	.151"	.017908
.007"	.000038	.043"	.001452	.079"	.004902	.115"	.010387	.152"	.018146
.008"	.000050	.044"	.001521	.080"	.005027	.116"	.010568	.153"	.018385
.009"	.000064	.045"	.001590	.081"	.005153	.117"	.010751	.154"	.018627
.010"	.000079	.046"	.001662	.082"	.005281	.118"	.010936	.155"	.018869
.011"	.000095	.047"	.001735	.083"	.005411	.119"	.011122	.156"	.019113
.012"	.000113	.048"	.001810	.084"	.005542	.120"	.011310	.157"	.019359
.013"	.000133	.049"	.001886	.085"	.005675	.121"	.011499	.158"	.019607
.014"	.000154	.050"	.001964	.086"	.005809	.122"	.011690	.159"	.019856
.015"	.000177	.051"	.002043	.087"	.005945	.123"	.011882	.160"	.020106
.016"	.000201	.052"	.002124	.088"	.006082	.124"	.012076	.161"	.020358
.017"	.000227	.053"	.002206	.089"	.006221	.125"	.012272	.162"	.020612
.018"	.000254	.054"	.002290	.090"	.006362	.126"	.012469	.163"	.020867
.019"	.000284	.055"	.002376	.091"	.006504	.127"	.012668	.164"	.021124
.020"	.000314	.056"	.002463	.092"	.006648	.128"	.012868	.165"	.021383
.021"	.000346	.057"	.002552	.093"	.006793	.129"	.013070	.166"	.021642
.022"	.000380	.058"	.002642	.094"	.006940	.130"	.013273	.167"	.021904
.023"	.000415	.059"	.002734	.095"	.007088	.131"	.013478	.168"	.022167
.024"	.000452	.060"	.002827	.096"	.007238	.132"	.013685	.169"	.022432
.025"	.000491	.061"	.002922	.097"	.007390	.133"	.013893	.170"	.022698
.026"	.000531	.062"	.003019	.098"	.007543	.134"	.014103	.171"	.022966
.027"	.000573	.063"	.003117	.099"	.007698	.135"	.014314	.172"	.023235
.028"	.000616	.064"	.003217	.100"	.007854	.136"	.014527	.173"	.023506
.029"	.000661	.065"	.003318	.101"	.008012	.137"	.014741	.174"	.023779
.030"	.000707	.066"	.003421	.102"	.008171	.138"	.014957	.175"	.024053
.031"	.000755	.067"	.003526	.103"	.008332	.139"	.015175	.176"	.024329
.032"	.000804	.068"	.003632	.104"	.008495	.140"	.015394	.177"	.024606
.033"	.000855	.069"	.003739	.105"	.008659	.141"	.015615	.178"	.024885
.034"	.000908	.070"	.003848	.106"	.008825	.142"	.015837	.179"	.025165
.035"	.000962	.071"	.003959	.107"	.008992	.143"	.016061	.180"	.025447
.036"	.001018	.072"	.004072	.108"	.009161	.144"	.016277	.181"	.025730
.037"	.001075	.073"	.004185	.109"	.009331	.145"	.016513	.182"	.026015
.038"	.001134	.074"	.004301	.110"	.009503	.146"	.016742	.183"	.026302
.039"	.001195	.075"	.004418	.111"	.009677	.147"	.016972	.184"	.026590
.040"	.001257	.076"	.004536	.112"	.009852	.148"	.017203	.185"	.026880
						.149"	.017437	.186"	.027172