Ratio of Specific Heat for some gases:

| Gas | Ratio of Specific Heat *- k -* |
| --- | --- |
| Acetylene | 1.30 |
| Air, Standard | 1.40 |
| Ammonia | 1.32 |
| Argon | 1.667 |
| Benzene | 1.12 |
| N-butane | 1.18 |
| Iso-butane | 1.19 |
| Carbon Dioxide | 1.28 |
| Carbon Disulphide | 1.21 |
| Carbon Monoxide | 1.40 |
| Chlorine | 1.33 |
| Ethane | 1.18 |
| Ethyl alcohol | 1.13 |
| Ethyl chloride | 1.19 |
| Ethylene | 1.24 |
| Helium | 1.66 |
| N-heptane | 1.05 |
| Hexane | 1.06 |
| Hydrochloric acid | 1.41 |
| Hydrogen | 1.41 |
| Hydrogen chloride | 1.41 |
| Hydrogen sulphide | 1.32 |
| Methane | 1.32 |
| Methyl alcohol | 1.20 |
| Methyl butane | 1.08 |
| Methyl chloride | 1.20 |
| Natural Gas (Methane) | 1.32 |
| Nitric oxide | 1.40 |
| Nitrogen | 1.40 |
| Nitrous oxide | 1.31 |
| N-octane | 1.05 |
| Oxygen | 1.40 |
| N-pentane | 1.08 |
| Iso-pentane | 1.08 |
| Propane | 1.13 |
| R-11 | 1.14 |
| R-12 | 1.14 |
| R-22 | 1.18 |
| R-114 | 1.09 |
| R-123 | 1.10 |
| R-134a | 1.20 |
| Steam (water) | 1.33 |
| Sulphur dioxide | 1.26 |
| Toulene | 1.09 |

m\_arg = 6.633520884527004e-026

R\_arg = 2.081321272720235e+002

d\_arg = 3.760000000000000e-010

Mach 1.55:

Dimensional

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 464.3212637 |
| Density1 | 0.0001067613 | Density2 | 0.0001899076 |
| Velocity1 | 500.0180209 | Velocity2 | 281.0975399 |

Mach 1.76

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 534.7407800 |
| Density1 | 0.0001067613 | Density2 | 0.0002169403 |
| Velocity1 | 567.7623979 | Velocity2 | 279.4088971 |

Mach 2.05:

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 643.0994852 |
| Density1 | 0.0001067613 | Density2 | 0.0002491715 |
| Velocity1 | 661.3141567 | Velocity2 | 283.3501020 |

Mach 2.31:

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 752.2179684 |
| Density1 | 0.0001067613 | Density2 | 0.0002733600 |
| Velocity1 | 745.1881473 | Velocity2 | 291.0347874 |

Mach 3.00

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 1100 |
| Density1 | 6.634184236615457e-6 | Density2 | 1.989989930149256e-5 |
| Velocity1 | 967.78 | Velocity2 | 322.59 |

Mach3.38:

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 1328.613828 |
| Density1 | 0.0001067613 | Density2 | 0.0003382279 |
| Velocity1 | 1090.361878 | Velocity2 | 344.1715949 |

Mach 3.80:

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 1612.354571 |
| Density1 | 0.0001067613 | Density2 | 0.0003535856 |
| Velocity1 | 1225.850632 | Velocity2 | 370.1321854 |

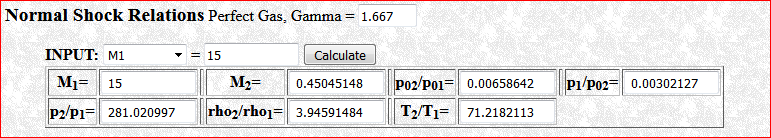
Mach 6.50:

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 4222.106139 |
| Density1 | 0.0001067613 | Density2 | 0.0003987328 |
| Velocity1 | 2096.849765 | Velocity2 | 561.4346267 |

Mach 9.00:

|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 7855.555556 |
| Density1 | 0.0001067613 | Density2 | 0.0004117936 |
| Velocity1 | 2903.330444 | Velocity2 | 752.7153006 |

MACH 15



|  |  |  |  |
| --- | --- | --- | --- |
| Temperature1 | 300.0000000 | Temperature2 | 2.136546339000000e+004 |
| Density1 | 0.0001067613 | Density2 | 4.212709980076920e-004 |
| Velocity1 | 2.970150474932601e+003 | Velocity2 | 752.7153006 |