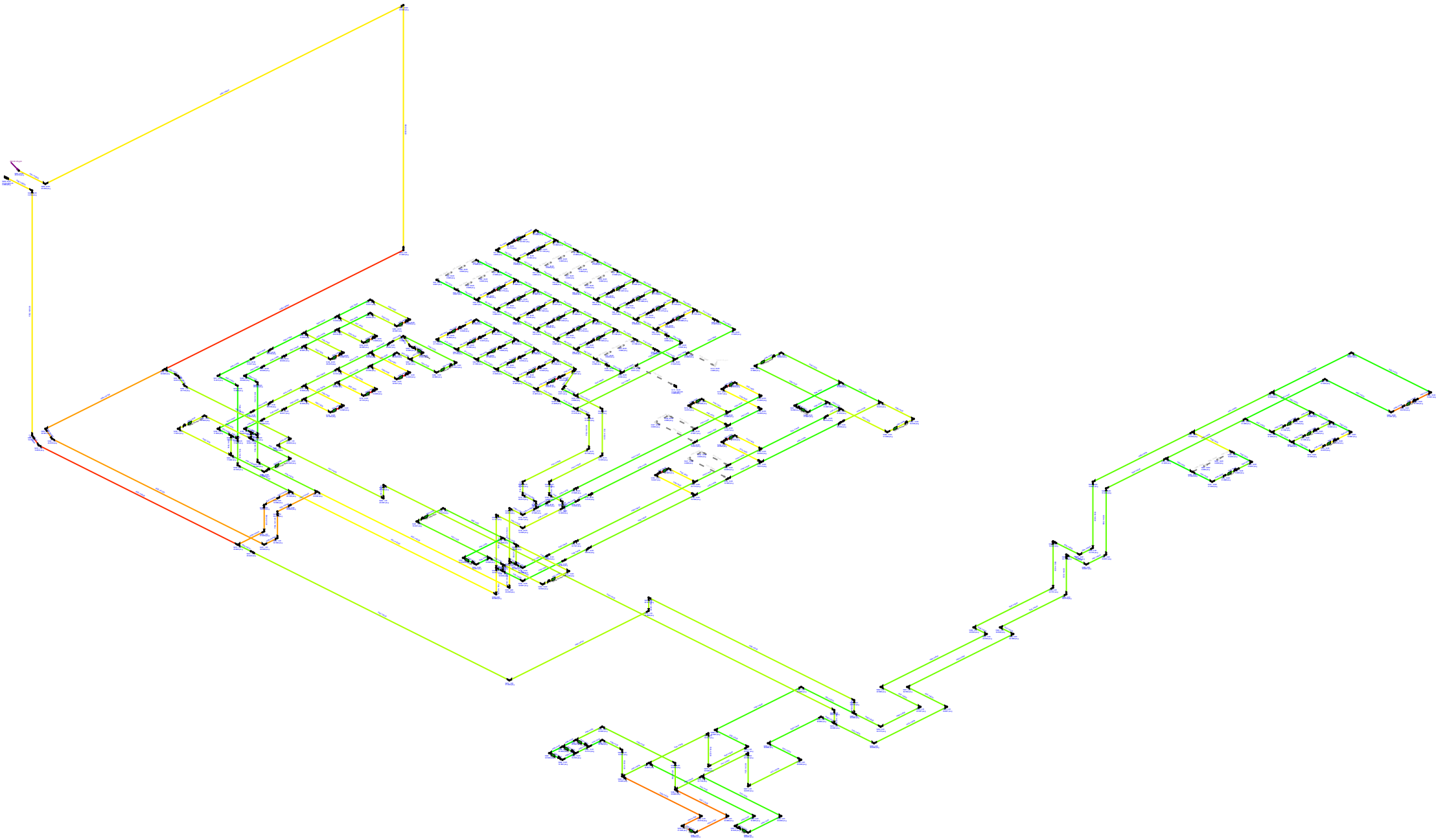
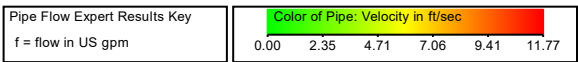




Pipe Flow Design

Results Data - Peter Hamblen



Fluid Data

| Zone | Fluid Name | Chemical Formula | Temperature °F | Pressure psi.g | Density lb/ft³ | Centistokes | Centipoise | Vapour Pressure psi.a | State |
|------|------------|------------------|----------------|----------------|----------------|-------------|------------|--------------------------|--------|
| 1 | Water | H2O | 68.000 | 0.0000 | 62.303105 | 1.000000 | 1.002000 | 0.348091 | Liquid |

Pump Data

| Pipe Id | Pipe Name | Pump Name | Speed rpm | Pref. Op From US gpm | Pref. Op To US gpm | Flow In/Out US gpm | Velocity ft/sec | Suction Pressure psi.g | Discharge Pressure psi.g | Pump Head (+) psi.g | Pump NPSHr ft.hd (absolute) | Pump NPSHa ft.hd (absolute) | Pump Efficiency Percentage | Pump Power Horsepower |
|---------|-----------|-----------|-----------|-------------------------|-----------------------|-----------------------|--------------------|------------------------------|--------------------------------|------------------------|-----------------------------------|-----------------------------------|----------------------------------|--------------------------|
|---------|-----------|-----------|-----------|-------------------------|-----------------------|-----------------------|--------------------|------------------------------|--------------------------------|------------------------|-----------------------------------|-----------------------------------|----------------------------------|--------------------------|

Pipe Data

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 1 | P1 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 21.6482 | 20.7601 |
| 2 | P2 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 10.7715 | 9.8834 |
| 3 | P3 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 9.9886 | 20.7601 | 10.7715 |
| 4 | P4 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 21.6520 | 21.1325 |
| 5 | P5 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 10.3954 | 9.8759 |
| 6 | P6 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 10.7371 | 21.1325 | 10.3954 |
| 16 | P16 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.6947 | 21.4497 |
| 17 | P17 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 10.0783 | 9.8332 |
| 18 | P18 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.3714 | 21.4497 | 10.0783 |
| 19 | P19 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.7118 | 21.4668 |
| 20 | P20 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 10.0611 | 9.8161 |
| 21 | P21 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.4057 | 21.4668 | 10.0611 |
| 22 | P22 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 21.7370 | 21.2175 |
| 23 | P23 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 10.3104 | 9.7909 |
| 24 | P24 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 10.9071 | 21.2175 | 10.3104 |
| 25 | P25 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 21.7767 | 20.8886 |
| 26 | P26 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 10.6394 | 9.7512 |
| 27 | P27 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 10.2492 | 20.8886 | 10.6394 |
| 28 | P28 | 2" Copper Type K | 1.959 | 2.167 | 3.8867 | 28.00 | 2.980 | 0.0397 | 21.7767 | 21.7370 |
| 29 | P29 | 2" Copper Type K | 1.959 | 2.167 | 3.0539 | 22.00 | 2.342 | 0.0251 | 21.7370 | 21.7118 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 30 | P30 | 2" Copper Type K | 1.959 | 2.167 | 2.4986 | 18.00 | 1.916 | 0.0172 | 21.7118 | 21.6947 |
| 31 | P31 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 21.6947 | 21.6840 |
| 32 | P32 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 21.6840 | 21.6733 |
| 33 | P33 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 21.6733 | 21.6626 |
| 34 | P34 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 21.6626 | 21.6520 |
| 35 | P35 | 2" Copper Type K | 1.959 | 2.167 | 1.1105 | 8.00 | 0.852 | 0.0037 | 21.6520 | 21.6482 |
| 36 | P36 | 2" Copper Type K | 1.959 | 2.167 | 1.1105 | 8.00 | 0.852 | 0.0074 | 9.8834 | 9.8759 |
| 37 | P37 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 9.8759 | 9.8653 |
| 38 | P38 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 9.8653 | 9.8546 |
| 39 | P39 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 9.8546 | 9.8439 |
| 40 | P40 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 9.8439 | 9.8332 |
| 41 | P41 | 2" Copper Type K | 1.959 | 2.167 | 2.4986 | 18.00 | 1.916 | 0.0172 | 9.8332 | 9.8161 |
| 42 | P42 | 2" Copper Type K | 1.959 | 2.167 | 3.0539 | 22.00 | 2.342 | 0.0251 | 9.8161 | 9.7909 |
| 43 | P43 | 2" Copper Type K | 1.959 | 2.167 | 3.8867 | 28.00 | 2.980 | 0.0397 | 9.7909 | 9.7512 |
| 50 | P50 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 21.6660 | 20.7779 |
| 51 | P51 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 10.7282 | 9.8401 |
| 52 | P52 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 10.0496 | 20.7779 | 10.7282 |
| 53 | P53 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.6697 | 21.4247 |
| 54 | P54 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 10.0814 | 9.8364 |
| 55 | P55 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.3433 | 21.4247 | 10.0814 |
| 56 | P56 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 21.6777 | 21.1582 |
| 57 | P57 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 10.3478 | 9.8284 |
| 58 | P58 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 10.8104 | 21.1582 | 10.3478 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 59 | P59 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.6949 | 21.4499 |
| 60 | P60 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 10.0562 | 9.8112 |
| 61 | P61 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.3936 | 21.4499 | 10.0562 |
| 62 | P62 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.7200 | 21.4750 |
| 63 | P63 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 10.0311 | 9.7861 |
| 64 | P64 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.4439 | 21.4750 | 10.0311 |
| 65 | P65 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.7545 | 21.5095 |
| 66 | P66 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 9.9966 | 9.7516 |
| 67 | P67 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.5129 | 21.5095 | 9.9966 |
| 71 | P71 | 2" Copper Type K | 1.959 | 2.167 | 4.1644 | 30.00 | 3.193 | 0.0453 | 21.7998 | 21.7545 |
| 72 | P72 | 2" Copper Type K | 1.959 | 2.167 | 3.6091 | 26.00 | 2.768 | 0.0345 | 21.7545 | 21.7200 |
| 73 | P73 | 2" Copper Type K | 1.959 | 2.167 | 3.0539 | 22.00 | 2.342 | 0.0251 | 21.7200 | 21.6949 |
| 74 | P74 | 2" Copper Type K | 1.959 | 2.167 | 2.4986 | 18.00 | 1.916 | 0.0172 | 21.6949 | 21.6777 |
| 75 | P75 | 2" Copper Type K | 1.959 | 2.167 | 1.6657 | 12.00 | 1.277 | 0.0080 | 21.6777 | 21.6697 |
| 76 | P76 | 2" Copper Type K | 1.959 | 2.167 | 1.1105 | 8.00 | 0.852 | 0.0037 | 21.6697 | 21.6660 |
| 77 | P77 | 2" Copper Type K | 1.959 | 2.167 | 0.0000 | 0.00 | 0.000 | 0.0000 | 21.6660 | 21.6660 |
| 78 | P78 | 2" Copper Type K | 1.959 | 2.167 | 0.0000 | 0.00 | 0.000 | 0.0000 | 21.6660 | 21.6660 |
| 79 | P79 | 2" Copper Type K | 1.959 | 2.167 | 0.0000 | 0.00 | 0.000 | 0.0000 | 9.8401 | 9.8401 |
| 80 | P80 | 2" Copper Type K | 1.959 | 2.167 | 0.0000 | 0.00 | 0.000 | 0.0000 | 9.8401 | 9.8401 |
| 81 | P81 | 2" Copper Type K | 1.959 | 2.167 | 1.1105 | 8.00 | 0.852 | 0.0037 | 9.8401 | 9.8364 |
| 82 | P82 | 2" Copper Type K | 1.959 | 2.167 | 1.6657 | 12.00 | 1.277 | 0.0080 | 9.8364 | 9.8284 |
| 83 | P83 | 2" Copper Type K | 1.959 | 2.167 | 2.4986 | 18.00 | 1.916 | 0.0172 | 9.8284 | 9.8112 |
| 84 | P84 | 2" Copper Type K | 1.959 | 2.167 | 3.0539 | 22.00 | 2.342 | 0.0251 | 9.8112 | 9.7861 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 85 | P85 | 2" Copper Type K | 1.959 | 2.167 | 3.6091 | 26.00 | 2.768 | 0.0345 | 9.7861 | 9.7516 |
| 86 | P86 | 2" Copper Type K | 1.959 | 2.167 | 4.1644 | 30.00 | 3.193 | 0.0453 | 9.7516 | 9.7062 |
| 87 | P87 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 10.6580 | 9.7699 |
| 88 | P88 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 21.7708 | 20.8826 |
| 89 | P89 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 10.2246 | 20.8826 | 10.6580 |
| 90 | P90 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 10.2819 | 9.7625 |
| 91 | P91 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 21.7745 | 21.2550 |
| 92 | P92 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 10.9731 | 21.2550 | 10.2819 |
| 93 | P93 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 9.9968 | 9.7518 |
| 94 | P94 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.7852 | 21.5402 |
| 95 | P95 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.5434 | 21.5402 | 9.9968 |
| 96 | P96 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 9.9796 | 9.7346 |
| 97 | P97 | 3/4" Copper Type K | 0.745 | 6.000 | 0.5552 | 4.00 | 2.944 | 0.2450 | 21.8024 | 21.5573 |
| 98 | P98 | 1/2" Copper Type K | 0.527 | 2.000 | 0.5552 | 4.00 | 5.883 | 11.5777 | 21.5573 | 9.9796 |
| 99 | P99 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 10.2290 | 9.7095 |
| 100 | P100 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 21.8275 | 21.3080 |
| 101 | P101 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 11.0790 | 21.3080 | 10.2290 |
| 102 | P102 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 10.5579 | 9.6697 |
| 103 | P103 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 21.8672 | 20.9791 |
| 104 | P104 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 10.4212 | 20.9791 | 10.5579 |
| 105 | P105 | 2" Copper Type K | 1.959 | 2.167 | 3.8867 | 28.00 | 2.980 | 0.0397 | 9.7095 | 9.6697 |
| 106 | P106 | 2" Copper Type K | 1.959 | 2.167 | 3.0539 | 22.00 | 2.342 | 0.0251 | 9.7346 | 9.7095 |
| 107 | P107 | 2" Copper Type K | 1.959 | 2.167 | 2.4986 | 18.00 | 1.916 | 0.0172 | 9.7518 | 9.7346 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 108 | P108 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 9.7625 | 9.7518 |
| 109 | P109 | 2" Copper Type K | 1.959 | 2.167 | 1.1105 | 8.00 | 0.852 | 0.0074 | 9.7699 | 9.7625 |
| 110 | P110 | 2" Copper Type K | 1.959 | 2.167 | 1.1105 | 8.00 | 0.852 | 0.0037 | 21.7745 | 21.7708 |
| 111 | P111 | 2" Copper Type K | 1.959 | 2.167 | 1.9434 | 14.00 | 1.490 | 0.0107 | 21.7852 | 21.7745 |
| 112 | P112 | 2" Copper Type K | 1.959 | 2.167 | 2.4986 | 18.00 | 1.916 | 0.0172 | 21.8024 | 21.7852 |
| 113 | P113 | 2" Copper Type K | 1.959 | 2.167 | 3.0539 | 22.00 | 2.342 | 0.0251 | 21.8275 | 21.8024 |
| 114 | P114 | 2" Copper Type K | 1.959 | 2.167 | 3.8867 | 28.00 | 2.980 | 0.0397 | 21.8672 | 21.8275 |
| 115 | P115 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.1644 | 30.00 | 1.153 | 0.0204 | 21.8422 | 21.8217 |
| 116 | P116 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.9972 | 36.00 | 1.384 | 0.0223 | 21.8295 | 21.8072 |
| 117 | P117 | 2" Copper Type K | 1.959 | 2.000 | 4.9972 | 36.00 | 3.832 | 0.0305 | 21.8072 | 21.7767 |
| 118 | P118 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.9972 | 36.00 | 1.384 | 0.0201 | 21.9178 | 21.8978 |
| 119 | P119 | 2" Copper Type K | 1.959 | 2.000 | 4.1644 | 30.00 | 3.193 | 0.0219 | 21.8217 | 21.7998 |
| 120 | P120 | 2" Copper Type K | 1.959 | 2.000 | 4.9972 | 36.00 | 3.832 | 0.0305 | 21.8978 | 21.8672 |
| 121 | P121 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 8.300 | 9.1616 | 66.00 | 2.537 | 0.0757 | 21.9178 | 21.8422 |
| 122 | P122 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.9972 | 36.00 | 1.384 | 0.0069 | 21.8422 | 21.8352 |
| 123 | P123 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.000 | 4.9972 | 36.00 | 1.384 | 0.0126 | 9.6502 | 9.6377 |
| 124 | P124 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.700 | 9.1616 | 66.00 | 2.537 | 0.0666 | 9.6354 | 9.5688 |
| 125 | P125 | 2" Copper Type K | 1.959 | 2.000 | 4.9972 | 36.00 | 3.832 | 0.0987 | 9.7512 | 9.6525 |
| 126 | P126 | 2" Copper Type K | 1.959 | 2.000 | 4.1644 | 30.00 | 3.193 | 0.0692 | 9.7062 | 9.6370 |
| 127 | P127 | 2" Copper Type K | 1.959 | 2.000 | 4.9972 | 36.00 | 3.832 | 0.0987 | 9.6697 | 9.5711 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 128 | P128 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.9972 | 36.00 | 1.384 | 0.0023 | 9.6525 | 9.6502 |
| 129 | P129 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.1644 | 30.00 | 1.153 | 0.0017 | 9.6370 | 9.6354 |
| 130 | P130 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.9972 | 36.00 | 1.384 | 0.0023 | 9.5711 | 9.5688 |
| 131 | P131 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 14.1588 | 102.00 | 3.921 | 0.1273 | 9.5688 | 9.4415 |
| 132 | P132 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 14.1588 | 102.00 | 3.921 | 0.0704 | 21.9883 | 21.9178 |
| 134 | P134 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.9972 | 36.00 | 1.384 | 0.0023 | 9.6377 | 9.6354 |
| 135 | P135 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.000 | 4.9972 | 36.00 | 1.384 | 0.0057 | 21.8352 | 21.8295 |
| 137 | P137 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 9.300 | 14.1588 | 102.00 | 3.921 | -3.8961 | 9.4415 | 13.3376 |
| 138 | P138 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 15.3511 | 14.4629 |
| 139 | P139 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 11.6213 | 26.9724 | 15.3511 |
| 140 | P140 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8881 | 27.8606 | 26.9724 |
| 141 | P141 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.700 | 14.1588 | 102.00 | 3.921 | -0.6674 | 13.7354 | 14.4028 |
| 142 | P142 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 14.1588 | 102.00 | 3.921 | 0.0626 | 13.7980 | 13.7354 |
| 143 | P143 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 8.600 | 14.1588 | 102.00 | 3.921 | 0.1221 | 13.3376 | 13.2155 |
| 144 | P144 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 27.8680 | 27.3486 |
| 145 | P145 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 12.3774 | 27.3486 | 14.9712 |
| 146 | P146 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 14.9712 | 14.4517 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 150 | P150 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 9.300 | 14.1588 | 102.00 | 3.921 | 4.1514 | 26.1396 | 21.9883 |
| 151 | P151 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 8.600 | 14.1588 | 102.00 | 3.921 | 0.1221 | 26.2618 | 26.1396 |
| 152 | P152 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 14.1588 | 102.00 | 3.921 | 0.0626 | 27.0399 | 26.9773 |
| 153 | P153 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 1.9434 | 14.00 | 0.538 | 0.0031 | 27.9003 | 27.8972 |
| 154 | P154 | 2" Copper Type K | 1.959 | 2.000 | 1.9434 | 14.00 | 1.490 | 0.0055 | 27.8926 | 27.8871 |
| 155 | P155 | 2" Copper Type K | 1.959 | 5.800 | 1.9434 | 14.00 | 1.490 | 0.0191 | 27.8871 | 27.8680 |
| 156 | P156 | 2" Copper Type K | 1.959 | 6.500 | 1.1105 | 8.00 | 0.852 | 0.0075 | 27.8680 | 27.8606 |
| 157 | P157 | 2" Copper Type K | 1.959 | 6.500 | 1.1105 | 8.00 | 0.852 | 0.0112 | 14.4629 | 14.4517 |
| 158 | P158 | 2" Copper Type K | 1.959 | 5.800 | 1.9434 | 14.00 | 1.490 | 0.0304 | 14.4517 | 14.4213 |
| 159 | P159 | 2" Copper Type K | 1.959 | 1.000 | 1.9434 | 14.00 | 1.490 | 0.0089 | 14.4213 | 14.4125 |
| 160 | P160 | 2" Copper Type K | 1.959 | 2.000 | 1.9434 | 14.00 | 1.490 | 0.0092 | 14.4125 | 14.4032 |
| 161 | P161 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.700 | 14.1588 | 102.00 | 3.921 | 0.8605 | 27.9003 | 27.0399 |
| 162 | P162 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.500 | 14.1588 | 102.00 | 3.921 | 0.7155 | 26.9773 | 26.2618 |
| 163 | P163 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.500 | 14.1588 | 102.00 | 3.921 | -0.5825 | 13.2155 | 13.7980 |
| 164 | P164 | 2" Copper Type K | 1.959 | 2.000 | 1.9434 | 14.00 | 1.490 | 0.0046 | 27.8972 | 27.8926 |
| 165 | P165 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 1.9434 | 14.00 | 0.538 | 0.0004 | 14.4032 | 14.4028 |
| 166 | P166 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 16.1022 | 116.00 | 4.459 | 0.0908 | 27.9911 | 27.9003 |
| 167 | P167 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 16.1022 | 116.00 | 4.459 | 0.1643 | 14.4028 | 14.2385 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 168 | P168 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 16.1022 | 116.00 | 4.459 | 0.0908 | 28.0819 | 27.9911 |
| 169 | P169 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.500 | 16.1022 | 116.00 | 4.459 | 4.6957 | 32.7777 | 28.0819 |
| 170 | P170 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 4.9972 | 36.00 | 1.384 | 0.0151 | 32.7777 | 32.7626 |
| 171 | P171 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 3.6091 | 26.00 | 0.999 | 0.0117 | 32.7595 | 32.7479 |
| 172 | P172 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 20.0522 | 18.8175 |
| 173 | P173 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 11.3583 | 31.4105 | 20.0522 |
| 174 | P174 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 32.6452 | 31.4105 |
| 178 | P178 | 2" Copper Type K | 1.959 | 7.200 | 2.4986 | 18.00 | 1.916 | 0.0353 | 32.7172 | 32.6819 |
| 179 | P179 | 2" Copper Type K | 1.959 | 7.600 | 2.4986 | 18.00 | 1.916 | 0.0367 | 32.6819 | 32.6452 |
| 180 | P180 | 2" Copper Type K | 1.959 | 7.600 | 2.4986 | 18.00 | 1.916 | 0.0555 | 18.8175 | 18.7620 |
| 181 | P181 | 2" Copper Type K | 1.959 | 7.200 | 2.4986 | 18.00 | 1.916 | 0.0540 | 18.7620 | 18.7080 |
| 182 | P182 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 32.7172 | 31.4825 |
| 183 | P183 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 11.5398 | 31.4825 | 19.9427 |
| 184 | P184 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 19.9427 | 18.7080 |
| 185 | P185 | 2" Copper Type K | 1.959 | 2.000 | 3.6091 | 26.00 | 2.768 | 0.0138 | 32.7479 | 32.7341 |
| 186 | P186 | 2" Copper Type K | 1.959 | 2.000 | 3.6091 | 26.00 | 2.768 | 0.0169 | 32.7341 | 32.7172 |
| 187 | P187 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.200 | 21.0994 | 152.00 | 5.842 | 2.4579 | 35.2355 | 32.7777 |
| 188 | P188 | 2" Copper Type K | 1.959 | 10.000 | 3.6091 | 26.00 | 2.768 | 0.0885 | 18.7080 | 18.6195 |
| 189 | P189 | 2" Copper Type K | 1.959 | 10.000 | 3.6091 | 26.00 | 2.768 | 0.0880 | 18.6195 | 18.5315 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 190 | P190 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.000 | 3.6091 | 26.00 | 0.999 | 0.0064 | 18.5315 | 18.5251 |
| 191 | P191 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 3.6091 | 26.00 | 0.999 | 0.0042 | 18.5251 | 18.5209 |
| 192 | P192 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.500 | 16.1022 | 116.00 | 4.459 | -4.3674 | 14.1477 | 18.5151 |
| 193 | P193 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 16.1022 | 116.00 | 4.459 | 0.0908 | 14.2385 | 14.1477 |
| 194 | P194 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.200 | 21.0994 | 152.00 | 5.842 | -2.0808 | 18.5151 | 20.5959 |
| 195 | P195 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 3.000 | 8.4675 | 61.00 | 2.345 | 0.0490 | 35.8322 | 35.7832 |
| 196 | P196 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.200 | 8.4675 | 61.00 | 2.345 | 2.2851 | 35.7832 | 33.4981 |
| 197 | P197 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 5.9689 | 43.00 | 1.653 | 0.0113 | 33.4981 | 33.4868 |
| 198 | P198 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.6502 | 33.50 | 1.288 | 0.0193 | 33.4818 | 33.4625 |
| 199 | P199 | 2" Copper Type K | 1.959 | 1.000 | 4.6502 | 33.50 | 3.566 | 0.0108 | 33.4625 | 33.4517 |
| 200 | P200 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 19.2995 | 18.0648 |
| 201 | P201 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 12.8907 | 32.1902 | 19.2995 |
| 202 | P202 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 33.4249 | 32.1902 |
| 203 | P203 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 19.3959 | 18.1612 |
| 204 | P204 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 12.7354 | 32.1314 | 19.3959 |
| 205 | P205 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 33.3661 | 32.1314 |
| 206 | P206 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 19.4533 | 18.2186 |
| 207 | P207 | 1/2" Copper Type K | 0.527 | 2.000 | 1.1105 | 8.00 | 11.767 | 12.6384 | 32.0917 | 19.4533 |
| 208 | P208 | 3/4" Copper Type K | 0.745 | 10.000 | 1.1105 | 8.00 | 5.888 | 1.2347 | 33.3264 | 32.0917 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 209 | P209 | 2" Copper Type K | 1.959 | 2.000 | 4.6502 | 33.50 | 3.566 | 0.0268 | 33.4517 | 33.4249 |
| 210 | P210 | 2" Copper Type K | 1.959 | 6.000 | 3.5397 | 25.50 | 2.714 | 0.0588 | 33.4249 | 33.3661 |
| 211 | P211 | 2" Copper Type K | 1.959 | 9.000 | 2.4292 | 17.50 | 1.863 | 0.0396 | 33.3661 | 33.3264 |
| 212 | P212 | 2" Copper Type K | 1.959 | 9.000 | 2.4292 | 17.50 | 1.863 | 0.0574 | 18.2186 | 18.1612 |
| 213 | P213 | 2" Copper Type K | 1.959 | 6.000 | 3.5397 | 25.50 | 2.714 | 0.0964 | 18.1612 | 18.0648 |
| 214 | P214 | 2" Copper Type K | 1.959 | 2.000 | 4.6502 | 33.50 | 3.566 | 0.0541 | 18.0648 | 18.0106 |
| 215 | P215 | 2" Copper Type K | 1.959 | 2.000 | 4.6502 | 33.50 | 3.566 | 0.0533 | 18.0106 | 17.9574 |
| 216 | P216 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 4.6502 | 33.50 | 1.288 | 0.0020 | 17.9574 | 17.9553 |
| 217 | P217 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 4.6502 | 33.50 | 1.288 | 0.0069 | 17.9553 | 17.9484 |
| 218 | P218 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.200 | 8.4675 | 61.00 | 2.345 | -2.1942 | 17.9402 | 20.1345 |
| 219 | P219 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 8.4675 | 61.00 | 2.345 | 0.0256 | 20.1345 | 20.1089 |
| 220 | P220 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 29.5669 | 213.00 | 8.187 | 0.5499 | 20.1089 | 19.5589 |
| 221 | P221 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 22.000 | 21.0994 | 152.00 | 5.842 | 0.4871 | 20.5959 | 20.1089 |
| 222 | P222 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 21.000 | 21.0994 | 152.00 | 5.842 | 0.5967 | 35.8322 | 35.2355 |
| 223 | P223 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 29.5669 | 213.00 | 8.187 | 0.0632 | 35.8954 | 35.8322 |
| 224 | P224 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 13.9397 | 13.4202 |
| 225 | P225 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 14.4675 | 28.4072 | 13.9397 |
| 226 | P226 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 28.9267 | 28.4072 |
| 227 | P227 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 13.9628 | 13.4433 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 228 | P228 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 14.4297 | 28.3925 | 13.9628 |
| 229 | P229 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 28.9120 | 28.3925 |
| 230 | P230 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 13.9706 | 13.4511 |
| 231 | P231 | 1/2" Copper Type K | 0.527 | 2.000 | 0.8329 | 6.00 | 8.825 | 14.4161 | 28.3867 | 13.9706 |
| 232 | P232 | 3/4" Copper Type K | 0.745 | 6.000 | 0.8329 | 6.00 | 4.416 | 0.5195 | 28.9062 | 28.3867 |
| 233 | P233 | 2" Copper Type K | 1.959 | 6.000 | 1.6657 | 12.00 | 1.277 | 0.0147 | 28.9267 | 28.9120 |
| 234 | P234 | 2" Copper Type K | 1.959 | 9.000 | 0.8329 | 6.00 | 0.639 | 0.0058 | 28.9120 | 28.9062 |
| 235 | P235 | 2" Copper Type K | 1.959 | 9.000 | 0.8329 | 6.00 | 0.639 | 0.0079 | 13.4511 | 13.4433 |
| 236 | P236 | 2" Copper Type K | 1.959 | 6.000 | 1.6657 | 12.00 | 1.277 | 0.0231 | 13.4433 | 13.4202 |
| 237 | P237 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.500 | 2.4986 | 18.00 | 0.692 | 4.5476 | 33.4981 | 28.9506 |
| 238 | P238 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 2.4986 | 18.00 | 0.692 | 0.0024 | 28.9506 | 28.9482 |
| 239 | P239 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 2.4986 | 18.00 | 0.692 | 0.0056 | 28.9482 | 28.9426 |
| 240 | P240 | 2" Copper Type K | 1.959 | 2.000 | 2.4986 | 18.00 | 1.916 | 0.0072 | 28.9426 | 28.9354 |
| 241 | P241 | 2" Copper Type K | 1.959 | 2.000 | 2.4986 | 18.00 | 1.916 | 0.0087 | 28.9354 | 28.9267 |
| 242 | P242 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 2.4986 | 18.00 | 0.692 | 0.0018 | 13.4202 | 13.4184 |
| 243 | P243 | 2" Copper Type K | 1.959 | 2.000 | 2.4986 | 18.00 | 1.916 | 0.0163 | 13.4184 | 13.4021 |
| 244 | P244 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 2.4986 | 18.00 | 0.692 | 0.0007 | 13.4021 | 13.4014 |
| 245 | P245 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | 2.4986 | 18.00 | 0.692 | 0.0007 | 13.4014 | 13.4008 |
| 246 | P246 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.500 | 2.4986 | 18.00 | 0.692 | -4.5395 | 13.4008 | 17.9402 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 247 | P247 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.000 | 29.5669 | 213.00 | 8.187 | 0.3159 | 19.5589 | 19.2430 |
| 248 | P248 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.800 | 29.5669 | 213.00 | 8.187 | -2.0648 | 19.2430 | 21.3078 |
| 249 | P249 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 4.000 | 29.5669 | 213.00 | 8.187 | 0.3652 | 21.3078 | 20.9425 |
| 250 | P250 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 12.500 | 38.8673 | 280.00 | 10.762 | 1.0807 | 20.9425 | 19.8618 |
| 251 | P251 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 3.000 | 38.8673 | 280.00 | 10.762 | 1.3917 | 19.8618 | 18.4701 |
| 252 | P252 | 4" Stainless Steel (ANSI) Sch. 10S | 4.260 | 43.500 | 38.8673 | 280.00 | 6.303 | 18.1958 | 18.4701 | 0.2744 |
| 253 | P253 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.000 | 29.5669 | 213.00 | 8.187 | 0.3159 | 36.2113 | 35.8954 |
| 254 | P254 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 5.800 | 29.5669 | 213.00 | 8.187 | 2.9541 | 39.1654 | 36.2113 |
| 255 | P255 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 4.000 | 29.5669 | 213.00 | 8.187 | 0.3652 | 39.5306 | 39.1654 |
| 256 | P256 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 12.500 | 29.5669 | 213.00 | 8.187 | 0.5211 | 40.0518 | 39.5306 |
| 257 | P257 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 3.000 | 29.5669 | 213.00 | 8.187 | -0.5317 | 39.5201 | 40.0518 |
| 258 | P258 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 26.000 | 38.8673 | 280.00 | 10.762 | 1.3894 | 41.3876 | 39.9983 |
| 259 | P259 | 4" Stainless Steel (ANSI) Sch. 10S | 4.260 | 43.500 | 38.8673 | 280.00 | 6.303 | -16.7883 | 24.5993 | 41.3876 |
| 260 | P260 | 4" Stainless Steel (ANSI) Sch. 10S | 4.260 | 36.000 | 38.8673 | 280.00 | 6.303 | 0.6335 | 25.2328 | 24.5993 |
| 261 | P261 | 4" Stainless Steel (ANSI) Sch. 10S | 4.260 | 10.000 | 38.8673 | 280.00 | 6.303 | 0.1381 | 25.3710 | 25.2328 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 262 | P262 | 4" Stainless Steel (ANSI) Sch. 10S | 4.260 | 10.000 | 38.8673 | 280.00 | 6.303 | 0.2744 | 0.2744 | 0.0000 |
| 263 | P263 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 9.3004 | 67.00 | 2.575 | 0.0972 | 39.9983 | 39.9010 |
| 264 | P264 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 10.000 | 29.5669 | 213.00 | 8.187 | 0.4782 | 39.9983 | 39.5201 |
| 265 | P265 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 9.3004 | 67.00 | 3.942 | -0.8144 | 39.9010 | 40.7155 |
| 266 | P266 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 6.000 | 9.3004 | 67.00 | 3.942 | 0.0921 | 40.7155 | 40.6234 |
| 267 | P267 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.800 | 9.3004 | 67.00 | 3.942 | -1.1262 | 38.8737 | 39.9999 |
| 268 | P268 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 1.000 | 3.0539 | 22.00 | 1.294 | 0.0135 | 39.9999 | 39.9864 |
| 269 | P269 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 8.500 | 3.0539 | 22.00 | 1.294 | 0.0174 | 39.9864 | 39.9690 |
| 270 | P270 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 3.0539 | 22.00 | 1.294 | 0.0285 | 39.9690 | 39.9406 |
| 271 | P271 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 5.500 | 3.0539 | 22.00 | 3.177 | 0.1090 | 39.9406 | 39.8316 |
| 272 | P272 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 9.000 | 3.0539 | 22.00 | 3.177 | 4.0451 | 39.8316 | 35.7865 |
| 273 | P273 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 4.160 | 6.2465 | 45.00 | 2.648 | 0.0713 | 39.9999 | 39.9286 |
| 274 | P274 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 12.830 | 6.2465 | 45.00 | 2.648 | 0.0884 | 39.9286 | 39.8401 |
| 275 | P275 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 6.000 | 6.2465 | 45.00 | 2.648 | 0.0549 | 39.8401 | 39.7852 |
| 276 | P276 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 6.750 | 6.2465 | 45.00 | 2.648 | 0.0586 | 39.7852 | 39.7266 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 277 | P277 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 1.500 | 6.2465 | 45.00 | 2.648 | 0.0328 | 39.7266 | 39.6938 |
| 278 | P278 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 19.670 | 6.2465 | 45.00 | 2.648 | 0.1220 | 39.6938 | 39.5718 |
| 279 | P279 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 8.750 | 6.2465 | 45.00 | 2.648 | 3.8608 | 39.5718 | 35.7110 |
| 280 | P280 | 3" Copper Type K | 2.907 | 4.000 | 6.2465 | 45.00 | 2.175 | 0.0279 | 35.7110 | 35.6831 |
| 281 | P281 | 3" Copper Type K | 2.907 | 4.000 | 6.2465 | 45.00 | 2.175 | 0.0279 | 35.6831 | 35.6551 |
| 282 | P282 | 3" Copper Type K | 2.907 | 9.650 | 6.2465 | 45.00 | 2.175 | 4.2188 | 35.6551 | 31.4364 |
| 283 | P283 | 3" Copper Type K | 2.907 | 8.650 | 6.2465 | 45.00 | 2.175 | 0.0408 | 31.4364 | 31.3955 |
| 284 | P284 | 3" Copper Type K | 2.907 | 7.640 | 0.8329 | 6.00 | 0.290 | 0.0012 | 31.3955 | 31.3943 |
| 288 | P288 | 1/2" Stainless Steel (ANSI) Sch. 10S | 0.674 | 7.640 | 0.8329 | 6.00 | 5.395 | 0.8944 | 15.9202 | 15.0258 |
| 289 | P289 | 3" Copper Type K | 2.907 | 8.650 | 6.2465 | 45.00 | 2.175 | 0.0354 | 15.0258 | 14.9904 |
| 290 | P290 | 3" Copper Type K | 2.907 | 9.650 | 6.2465 | 45.00 | 2.175 | -4.1316 | 14.9904 | 19.1219 |
| 291 | P291 | 3" Copper Type K | 2.907 | 4.000 | 6.2465 | 45.00 | 2.175 | 0.0279 | 19.1219 | 19.0940 |
| 292 | P292 | 3" Copper Type K | 2.907 | 4.000 | 6.2465 | 45.00 | 2.175 | 0.0349 | 19.0940 | 19.0591 |
| 293 | P293 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 8.750 | 6.2465 | 45.00 | 2.648 | -3.7150 | 19.0591 | 22.7741 |
| 294 | P294 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 19.670 | 6.2465 | 45.00 | 2.648 | 0.1220 | 22.7741 | 22.6520 |
| 295 | P295 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 1.500 | 6.2465 | 45.00 | 2.648 | 0.0328 | 22.6520 | 22.6192 |
| 296 | P296 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 6.750 | 6.2465 | 45.00 | 2.648 | 0.0586 | 22.6192 | 22.5606 |
| 297 | P297 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 6.000 | 6.2465 | 45.00 | 2.648 | 0.0549 | 22.5606 | 22.5057 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 298 | P298 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 12.830 | 6.2465 | 45.00 | 2.648 | 0.0884 | 22.5057 | 22.4173 |
| 299 | P299 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 6.300 | 6.2465 | 45.00 | 2.648 | 0.0564 | 22.4173 | 22.3609 |
| 300 | P300 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.800 | 9.3004 | 67.00 | 3.942 | 1.3531 | 22.3609 | 21.0078 |
| 301 | P301 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 1.000 | 3.0539 | 22.00 | 1.294 | 0.0074 | 22.3683 | 22.3609 |
| 302 | P302 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 8.500 | 3.0539 | 22.00 | 1.294 | 0.0174 | 22.3857 | 22.3683 |
| 303 | P303 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 4.000 | 3.0539 | 22.00 | 1.294 | 0.0114 | 22.3971 | 22.3857 |
| 304 | P304 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 5.500 | 3.0539 | 22.00 | 3.177 | 0.1368 | 22.5339 | 22.3971 |
| 305 | P305 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 9.000 | 3.0539 | 22.00 | 3.177 | -3.7428 | 18.7911 | 22.5339 |
| 306 | P306 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 0.500 | 9.3004 | 67.00 | 2.575 | 0.0018 | 20.9443 | 20.9425 |
| 307 | P307 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 28.200 | 9.3004 | 67.00 | 3.942 | 0.3561 | 21.3004 | 20.9443 |
| 308 | P308 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 24.300 | 9.3004 | 67.00 | 3.942 | 0.3065 | 21.0078 | 20.7013 |
| 309 | P309 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 9.3004 | 67.00 | 3.942 | -0.7883 | 20.7013 | 21.4896 |
| 310 | P310 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 2.000 | 3.0539 | 22.00 | 3.177 | 0.0526 | 18.8437 | 18.7911 |
| 311 | P311 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 2.000 | 3.0539 | 22.00 | 3.177 | 0.0668 | 35.7865 | 35.7196 |
| 312 | P312 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 11.500 | 0.2776 | 2.00 | 1.203 | 0.0701 | 35.7196 | 35.6496 |
| 313 | P313 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 1.000 | 2.0822 | 15.00 | 9.025 | 0.5795 | 21.3935 | 20.8139 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 314 | P314 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 11.500 | 0.2776 | 2.00 | 1.203 | 0.0628 | 18.9065 | 18.8437 |
| 315 | P315 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 1.000 | 9.3004 | 67.00 | 3.942 | 0.0667 | 40.6234 | 40.5567 |
| 316 | P316 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 36.500 | 9.3004 | 67.00 | 3.942 | 0.4321 | 39.3058 | 38.8737 |
| 317 | P317 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 24.500 | 9.3004 | 67.00 | 3.942 | 0.3086 | 40.5567 | 40.2481 |
| 318 | P318 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 9.3004 | 67.00 | 3.942 | 0.9423 | 40.2481 | 39.3058 |
| 319 | P319 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 1.000 | 2.0822 | 15.00 | 9.025 | 0.5795 | 33.3858 | 32.8063 |
| 320 | P320 | 3/4" Copper Type K | 0.745 | 3.000 | 2.0822 | 15.00 | 11.040 | 11.4128 | 32.8063 | 21.3935 |
| 321 | P321 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 8.500 | 2.0822 | 15.00 | 9.025 | 2.3002 | 35.6860 | 33.3858 |
| 322 | P322 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 1.000 | 0.2776 | 2.00 | 1.203 | 0.0121 | 35.6496 | 35.6375 |
| 323 | P323 | 3/4" Copper Type K | 0.745 | 3.000 | 0.2776 | 2.00 | 1.472 | 16.7190 | 35.6375 | 18.9185 |
| 324 | P324 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 1.000 | 0.2776 | 2.00 | 1.203 | 0.0121 | 18.9185 | 18.9065 |
| 325 | P325 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 1.000 | 2.7762 | 20.00 | 2.888 | 0.0336 | 35.7196 | 35.6860 |
| 326 | P326 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 8.500 | 2.0822 | 15.00 | 9.025 | 1.8895 | 20.8139 | 18.9245 |
| 327 | P327 | 1-1/2" Stainless Steel (ANSI) Sch. 10S | 1.682 | 1.000 | 2.7762 | 20.00 | 2.888 | 0.0807 | 18.9245 | 18.8437 |
| 328 | P328 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 6.000 | 0.6941 | 5.00 | 3.008 | 2.8291 | 35.6860 | 32.8568 |
| 329 | P329 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 8.000 | 0.6941 | 5.00 | 3.008 | 0.2349 | 32.8568 | 32.6220 |
| 330 | P330 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 2.000 | 0.6941 | 5.00 | 3.008 | 0.0929 | 32.6220 | 32.5291 |
| 331 | P331 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 2.000 | 0.2776 | 2.00 | 1.203 | 15.7777 | 32.5291 | 16.7513 |
| 332 | P332 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 2.000 | 0.4164 | 3.00 | 1.805 | 0.0302 | 16.7815 | 16.7513 |
| 333 | P333 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 2.000 | 0.2776 | 2.00 | 1.203 | 15.7474 | 32.5289 | 16.7815 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 334 | P334 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 0.1388 | 1.00 | 0.059 | 0.0000 | 32.5289 | 32.5289 |
| 335 | P335 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 0.1388 | 1.00 | 0.059 | 15.7408 | 32.5289 | 16.7881 |
| 336 | P336 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 2.000 | 0.1388 | 1.00 | 0.602 | 0.0065 | 16.7881 | 16.7815 |
| 337 | P337 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 0.6941 | 5.00 | 0.294 | 0.0004 | 16.7513 | 16.7509 |
| 338 | P338 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 8.000 | 0.6941 | 5.00 | 3.008 | 0.2349 | 16.7509 | 16.5161 |
| 339 | P339 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 6.000 | 0.6941 | 5.00 | 3.008 | -2.4084 | 16.5161 | 18.9245 |
| 340 | P340 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 2.000 | 0.4164 | 3.00 | 0.177 | 0.0002 | 32.5291 | 32.5289 |
| 341 | P341 | 3" Copper Type K | 2.907 | 3.000 | 0.8329 | 6.00 | 0.290 | 0.0004 | 31.3943 | 31.3939 |
| 342 | P342 | 1" Copper Type K | 0.995 | 6.000 | 0.8329 | 6.00 | 2.476 | 0.1070 | 31.3939 | 31.2868 |
| 343 | P343 | 1" Copper Type K | 0.995 | 3.000 | 0.8329 | 6.00 | 2.476 | 15.2875 | 31.2868 | 15.9993 |
| 344 | P344 | 1" Copper Type K | 0.995 | 6.000 | 0.8329 | 6.00 | 2.476 | 0.0786 | 15.9993 | 15.9207 |
| 345 | P345 | 3" Copper Type K | 2.907 | 3.000 | 0.8329 | 6.00 | 0.290 | 0.0005 | 15.9207 | 15.9202 |
| 346 | P346 | 3" Copper Type K | 2.907 | 16.000 | 5.4137 | 39.00 | 1.885 | 0.0430 | 31.3955 | 31.3526 |
| 347 | P347 | 3" Copper Type K | 2.907 | 7.640 | 3.3315 | 24.00 | 1.160 | 0.0117 | 31.3526 | 31.3408 |
| 348 | P348 | 3" Copper Type K | 2.907 | 3.000 | 2.2210 | 16.00 | 0.773 | 0.0028 | 31.3408 | 31.3380 |
| 349 | P349 | 3" Copper Type K | 2.907 | 3.000 | 2.2210 | 16.00 | 0.773 | 0.0057 | 15.0952 | 15.0895 |
| 350 | P350 | 3" Copper Type K | 2.907 | 7.600 | 3.3315 | 24.00 | 1.160 | 0.0167 | 15.0895 | 15.0728 |
| 351 | P351 | 3" Copper Type K | 2.907 | 16.000 | 5.4137 | 39.00 | 1.885 | 0.0470 | 15.0728 | 15.0258 |
| 352 | P352 | 1" Copper Type K | 0.995 | 6.000 | 1.1105 | 8.00 | 3.301 | 0.2315 | 31.3408 | 31.1093 |
| 353 | P353 | 1" Copper Type K | 0.995 | 3.000 | 1.1105 | 8.00 | 3.301 | 15.8893 | 31.1093 | 15.2199 |
| 354 | P354 | 1" Copper Type K | 0.995 | 6.000 | 1.1105 | 8.00 | 3.301 | 0.1304 | 15.2199 | 15.0895 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 355 | P355 | 1" Copper Type K | 0.995 | 6.000 | 1.1105 | 8.00 | 3.301 | 0.2315 | 31.3380 | 31.1065 |
| 356 | P356 | 2-1/2" Stainless Steel (ANSI) Sch. 10S | 2.635 | 12.900 | 9.3004 | 67.00 | 3.942 | 0.1892 | 21.4896 | 21.3004 |
| 357 | P357 | 1" Copper Type K | 0.995 | 3.000 | 1.1105 | 8.00 | 3.301 | 15.8809 | 31.1065 | 15.2256 |
| 358 | P358 | 1" Copper Type K | 0.995 | 6.000 | 1.1105 | 8.00 | 3.301 | 0.1304 | 15.2256 | 15.0952 |
| 359 | P359 | 3" Copper Type K | 2.907 | 3.000 | 1.1105 | 8.00 | 0.387 | 0.0008 | 31.3380 | 31.3373 |
| 360 | P360 | 3" Copper Type K | 2.907 | 3.000 | 1.1105 | 8.00 | 0.387 | 0.0015 | 15.0967 | 15.0952 |
| 361 | P361 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.8695 | 31.3373 | 30.4678 |
| 362 | P362 | 3/4" Copper Type K | 0.745 | 3.000 | 1.1105 | 8.00 | 5.888 | 14.8513 | 30.4678 | 15.6165 |
| 363 | P363 | 3/4" Copper Type K | 0.745 | 6.000 | 1.1105 | 8.00 | 5.888 | 0.5198 | 15.6165 | 15.0967 |
| 364 | P364 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 3.6091 | 26.00 | 0.999 | 0.0031 | 32.7626 | 32.7595 |
| 365 | P365 | 1" Copper Type K | 0.995 | 1.500 | 1.3881 | 10.00 | 4.126 | 0.8554 | 32.7626 | 31.9072 |
| 366 | P366 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.5906 | 31.9072 | 31.3166 |
| 367 | P367 | 3/4" Copper Type K | 0.745 | 3.000 | 0.9023 | 6.50 | 4.784 | 12.7632 | 31.3166 | 18.5534 |
| 368 | P368 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.4752 | 18.5534 | 18.0782 |
| 369 | P369 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 4.9972 | 36.00 | 1.384 | 0.0058 | 18.5209 | 18.5151 |
| 370 | P370 | 1" Copper Type K | 0.995 | 1.500 | 1.3881 | 10.00 | 4.126 | -0.4426 | 18.0782 | 18.5209 |
| 371 | P371 | 1" Copper Type K | 0.995 | 1.000 | 0.4858 | 3.50 | 1.444 | 0.0245 | 31.9072 | 31.8828 |
| 372 | P372 | 3/4" Copper Type K | 0.745 | 3.000 | 0.4164 | 3.00 | 2.208 | 13.2879 | 31.6179 | 18.3301 |
| 373 | P373 | 3/4" Copper Type K | 0.745 | 14.000 | 0.4164 | 3.00 | 2.208 | 0.2403 | 18.3301 | 18.0898 |
| 374 | P374 | 2" Copper Type K | 1.959 | 1.500 | 1.3881 | 10.00 | 1.064 | 0.0347 | 32.6452 | 32.6105 |
| 375 | P375 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.5906 | 31.9132 | 31.3226 |
| 376 | P376 | 1" Copper Type K | 0.995 | 1.000 | 0.4858 | 3.50 | 1.444 | 0.0245 | 31.9132 | 31.8887 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 377 | P377 | 1" Copper Type K | 0.995 | 1.500 | 1.3881 | 10.00 | 4.126 | 0.6974 | 32.6105 | 31.9132 |
| 378 | P378 | 3/4" Copper Type K | 0.745 | 14.000 | 0.4164 | 3.00 | 2.208 | 0.2403 | 18.6932 | 18.4529 |
| 379 | P379 | 1" Copper Type K | 0.995 | 1.500 | 1.3881 | 10.00 | 4.126 | -0.3785 | 18.4413 | 18.8199 |
| 380 | P380 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.4752 | 18.9165 | 18.4413 |
| 381 | P381 | 3/4" Copper Type K | 0.745 | 3.000 | 0.9023 | 6.50 | 4.784 | 12.4060 | 31.3226 | 18.9165 |
| 382 | P382 | 3/4" Copper Type K | 0.745 | 3.000 | 0.4164 | 3.00 | 2.208 | 12.9635 | 31.6566 | 18.6932 |
| 383 | P383 | 2" Copper Type K | 1.959 | 1.500 | 1.3881 | 10.00 | 1.064 | 0.0024 | 18.8199 | 18.8175 |
| 384 | P384 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 6.000 | 2.0822 | 15.00 | 9.025 | 1.4236 | 31.3401 | 29.9164 |
| 385 | P385 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 3.000 | 2.0822 | 15.00 | 9.025 | 13.8144 | 29.9164 | 16.1020 |
| 389 | P389 | 3/4" Copper Type K | 0.745 | 14.000 | 0.4164 | 3.00 | 2.208 | 0.2649 | 31.8828 | 31.6179 |
| 390 | P390 | 1" Copper Type K | 0.995 | 1.000 | 0.4858 | 3.50 | 1.444 | 0.0116 | 18.0898 | 18.0782 |
| 391 | P391 | 3/4" Copper Type K | 0.745 | 6.000 | 0.0694 | 0.50 | 0.368 | 0.0040 | 31.8828 | 31.8788 |
| 392 | P392 | 3/4" Copper Type K | 0.745 | 3.000 | 0.0694 | 0.50 | 0.368 | 13.7856 | 31.8788 | 18.0931 |
| 393 | P393 | 3/4" Copper Type K | 0.745 | 6.000 | 0.0694 | 0.50 | 0.368 | 0.0033 | 18.0931 | 18.0898 |
| 394 | P394 | 3/4" Copper Type K | 0.745 | 14.000 | 0.4164 | 3.00 | 2.208 | 0.2321 | 31.8887 | 31.6566 |
| 395 | P395 | 1" Copper Type K | 0.995 | 1.000 | 0.4858 | 3.50 | 1.444 | 0.0116 | 18.4529 | 18.4413 |
| 396 | P396 | 3/4" Copper Type K | 0.745 | 6.000 | 0.0694 | 0.50 | 0.368 | 0.0040 | 31.8887 | 31.8847 |
| 397 | P397 | 3/4" Copper Type K | 0.745 | 3.000 | 0.0694 | 0.50 | 0.368 | 13.4284 | 31.8847 | 18.4562 |
| 398 | P398 | 3/4" Copper Type K | 0.745 | 6.000 | 0.0694 | 0.50 | 0.368 | 0.0033 | 18.4562 | 18.4529 |
| 399 | P399 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 4.6502 | 33.50 | 1.288 | 0.0050 | 33.4868 | 33.4818 |
| 400 | P400 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 1.000 | 5.9689 | 43.00 | 1.653 | 0.0082 | 17.9484 | 17.9402 |
| 401 | P401 | 1" Copper Type K | 0.995 | 1.500 | 1.3187 | 9.50 | 3.920 | 0.8357 | 33.4868 | 32.6511 |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|-------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 402 | P402 | 3/4" Copper Type K | 0.745 | 6.000 | 0.4164 | 3.00 | 2.208 | 0.1416 | 32.6511 | 32.5095 |
| 403 | P403 | 3/4" Copper Type K | 0.745 | 3.000 | 0.4164 | 3.00 | 2.208 | 14.9062 | 32.5095 | 17.6032 |
| 404 | P404 | 3/4" Copper Type K | 0.745 | 6.000 | 0.4164 | 3.00 | 2.208 | 0.1170 | 17.6032 | 17.4862 |
| 405 | P405 | 1" Copper Type K | 0.995 | 1.500 | 1.3187 | 9.50 | 3.920 | -0.4622 | 17.4862 | 17.9484 |
| 406 | P406 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.5906 | 32.6511 | 32.0605 |
| 407 | P407 | 3/4" Copper Type K | 0.745 | 3.000 | 0.9023 | 6.50 | 4.784 | 14.0991 | 32.0605 | 17.9614 |
| 408 | P408 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.4752 | 17.9614 | 17.4862 |
| 409 | P409 | 2" Copper Type K | 1.959 | 1.500 | 1.3187 | 9.50 | 1.011 | 0.0339 | 33.3264 | 33.2925 |
| 410 | P410 | 1" Copper Type K | 0.995 | 1.500 | 1.3187 | 9.50 | 3.920 | 0.7645 | 33.2925 | 32.5281 |
| 411 | P411 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.5906 | 32.5281 | 31.9374 |
| 412 | P412 | 3/4" Copper Type K | 0.745 | 6.000 | 0.9023 | 6.50 | 4.784 | 0.4752 | 18.2955 | 17.8203 |
| 413 | P413 | 1" Copper Type K | 0.995 | 1.500 | 1.3187 | 9.50 | 3.920 | -0.4044 | 17.8203 | 18.2247 |
| 414 | P414 | 3/4" Copper Type K | 0.745 | 6.000 | 0.4164 | 3.00 | 2.208 | 0.1416 | 32.5281 | 32.3864 |
| 415 | P415 | 3/4" Copper Type K | 0.745 | 3.000 | 0.4164 | 3.00 | 2.208 | 14.4491 | 32.3864 | 17.9373 |
| 416 | P416 | 3/4" Copper Type K | 0.745 | 6.000 | 0.4164 | 3.00 | 2.208 | 0.1170 | 17.9373 | 17.8203 |
| 417 | P417 | 3/4" Copper Type K | 0.745 | 3.000 | 0.9023 | 6.50 | 4.784 | 13.6419 | 31.9374 | 18.2955 |
| 418 | P418 | 2" Copper Type K | 1.959 | 1.500 | 1.3187 | 9.50 | 1.011 | 0.0061 | 18.2247 | 18.2186 |
| 419 | P419 | 3" Copper Type K | 2.907 | 6.000 | 2.0822 | 15.00 | 0.725 | 0.0024 | 31.3526 | 31.3502 |
| 420 | P420 | 3" Copper Type K | 2.907 | 20.700 | 2.0822 | 15.00 | 0.725 | 0.0101 | 31.3502 | 31.3401 |
| 422 | P422 | 3" Copper Type K | 2.907 | 20.700 | 2.0822 | 15.00 | 0.725 | 0.0121 | 15.0891 | 15.0771 |
| 423 | P423 | 3" Copper Type K | 2.907 | 6.000 | 2.0822 | 15.00 | 0.725 | 0.0043 | 15.0771 | 15.0728 |
| 425 | P425 | 3/4" PVC (ANSI) Sch. 40 | 0.824 | 6.000 | 2.0822 | 15.00 | 9.025 | 1.0129 | 16.1020 | 15.0891 |
| 7 | Closed. P7 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 8 | Closed. P8 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 9 | Closed. P9 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 10 | Closed. P10 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 11 | Closed. P11 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 12 | Closed. P12 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 13 | Closed. P13 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 14 | Closed. P14 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 15 | Closed. P15 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 44 | Closed. P44 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 45 | Closed. P45 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 46 | Closed. P46 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 47 | Closed. P47 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 48 | Closed. P48 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 49 | Closed. P49 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 68 | Closed. P68 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 69 | Closed. P69 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 70 | Closed. P70 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 133 | Closed. P133 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | | | | | | |
| 136 | Closed. P136 | 3" Stainless Steel (ANSI) Sch. 10S | 3.260 | 2.000 | | | | | | |
| 147 | Closed. P147 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |
| 148 | Closed. P148 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 149 | Closed. P149 | 3/4" Copper Type K | 0.745 | 6.000 | | | | | | |

| Pipe Id | Pipe Name and Notes | Material | Inner Diameter inch | Length ft | Mass Flow lb/sec | Vol Flow US gpm | Velocity ft/sec | dP Total Loss psi | Entry Pressure psi.g | Exit Pressure psi.g |
|---------|---------------------|--------------------------------------|---------------------|-----------|------------------|-----------------|-----------------|-------------------|----------------------|---------------------|
| 175 | Closed. P175 | 3/4" Copper Type K | 0.745 | 10.000 | | | | | | |
| 176 | Closed. P176 | 1/2" Copper Type K | 0.527 | 2.000 | | | | | | |
| 177 | Closed. P177 | 3/4" Copper Type K | 0.745 | 10.000 | | | | | | |
| 285 | Closed. P285 | 1/2" Stainless Steel (ANSI) Sch. 10S | 0.674 | 6.000 | | | | | | |
| 286 | Closed. P286 | 1/2" Stainless Steel (ANSI) Sch. 10S | 0.674 | 3.000 | | | | | | |
| 287 | Closed. P287 | 1/2" Stainless Steel (ANSI) Sch. 10S | 0.674 | 6.000 | | | | | | |

Pipe Materials

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|----------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 1 | P1 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 2 | P2 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 3 | P3 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 4 | P4 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 5 | P5 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 6 | P6 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 16 | P16 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 17 | P17 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 18 | P18 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 19 | P19 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 20 | P20 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 21 | P21 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 22 | P22 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 23 | P23 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 24 | P24 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 25 | P25 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 26 | P26 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 27 | P27 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 28 | P28 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 29 | P29 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 30 | P30 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 31 | P31 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 32 | P32 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 33 | P33 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 34 | P34 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 35 | P35 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 36 | P36 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 37 | P37 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 38 | P38 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 39 | P39 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 40 | P40 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 41 | P41 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 42 | P42 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|----------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 43 | P43 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 50 | P50 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 51 | P51 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 52 | P52 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 53 | P53 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 54 | P54 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 55 | P55 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 56 | P56 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 57 | P57 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 58 | P58 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 59 | P59 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 60 | P60 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 61 | P61 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 62 | P62 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 63 | P63 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 64 | P64 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 65 | P65 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 66 | P66 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 67 | P67 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 71 | P71 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 72 | P72 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 73 | P73 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 74 | P74 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 75 | P75 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 76 | P76 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 77 | P77 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 78 | P78 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 79 | P79 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 80 | P80 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 81 | P81 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 82 | P82 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 83 | P83 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 84 | P84 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 85 | P85 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 86 | P86 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 87 | P87 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 88 | P88 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 89 | P89 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 90 | P90 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 91 | P91 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 92 | P92 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 93 | P93 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 94 | P94 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 95 | P95 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 96 | P96 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 97 | P97 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 98 | P98 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 99 | P99 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 100 | P100 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 101 | P101 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 102 | P102 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 103 | P103 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 104 | P104 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 105 | P105 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 106 | P106 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 107 | P107 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 108 | P108 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 109 | P109 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 110 | P110 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 111 | P111 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 112 | P112 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 113 | P113 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 114 | P114 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.167 | 4.492 | 0.045 |
| 115 | P115 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 116 | P116 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 117 | P117 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 118 | P118 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 119 | P119 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 120 | P120 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 121 | P121 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 8.300 | 36.354 | 0.481 |
| 122 | P122 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 123 | P123 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.000 | 21.900 | 0.290 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 124 | P124 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.700 | 24.966 | 0.330 |
| 125 | P125 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 126 | P126 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 127 | P127 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 128 | P128 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 129 | P129 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 130 | P130 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 131 | P131 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 132 | P132 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 134 | P134 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 135 | P135 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.000 | 21.900 | 0.290 |
| 137 | P137 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 9.300 | 40.734 | 0.539 |
| 138 | P138 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 139 | P139 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 140 | P140 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 141 | P141 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.700 | 7.446 | 0.099 |
| 142 | P142 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 143 | P143 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 8.600 | 37.668 | 0.498 |
| 144 | P144 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 145 | P145 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 146 | P146 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 150 | P150 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 9.300 | 40.734 | 0.539 |
| 151 | P151 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 8.600 | 37.668 | 0.498 |
| 152 | P152 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 153 | P153 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 154 | P154 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 155 | P155 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 5.800 | 12.023 | 0.121 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 156 | P156 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 6.500 | 13.474 | 0.136 |
| 157 | P157 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 6.500 | 13.474 | 0.136 |
| 158 | P158 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 5.800 | 12.023 | 0.121 |
| 159 | P159 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 1.000 | 2.073 | 0.021 |
| 160 | P160 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 161 | P161 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.700 | 7.446 | 0.099 |
| 162 | P162 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.500 | 6.570 | 0.087 |
| 163 | P163 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.500 | 6.570 | 0.087 |
| 164 | P164 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 165 | P165 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 166 | P166 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 167 | P167 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 168 | P168 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 169 | P169 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.500 | 45.990 | 0.609 |
| 170 | P170 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 171 | P171 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 172 | P172 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 173 | P173 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 174 | P174 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 178 | P178 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 7.200 | 14.926 | 0.151 |
| 179 | P179 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 7.600 | 15.755 | 0.159 |
| 180 | P180 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 7.600 | 15.755 | 0.159 |
| 181 | P181 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 7.200 | 14.926 | 0.151 |
| 182 | P182 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 183 | P183 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 184 | P184 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 185 | P185 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 186 | P186 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 187 | P187 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.200 | 22.776 | 0.301 |
| 188 | P188 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 10.000 | 20.730 | 0.209 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 189 | P189 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 10.000 | 20.730 | 0.209 |
| 190 | P190 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.000 | 43.800 | 0.580 |
| 191 | P191 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 192 | P192 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.500 | 45.990 | 0.609 |
| 193 | P193 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 194 | P194 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.200 | 22.776 | 0.301 |
| 195 | P195 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 3.000 | 13.140 | 0.174 |
| 196 | P196 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.200 | 22.776 | 0.301 |
| 197 | P197 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 198 | P198 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 199 | P199 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 1.000 | 2.073 | 0.021 |
| 200 | P200 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 201 | P201 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 202 | P202 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 203 | P203 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 204 | P204 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 205 | P205 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 206 | P206 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 207 | P207 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 208 | P208 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 10.000 | 6.440 | 0.030 |
| 209 | P209 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 210 | P210 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 6.000 | 12.438 | 0.126 |
| 211 | P211 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 9.000 | 18.657 | 0.188 |
| 212 | P212 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 9.000 | 18.657 | 0.188 |
| 213 | P213 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 6.000 | 12.438 | 0.126 |
| 214 | P214 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 215 | P215 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 216 | P216 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 217 | P217 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 218 | P218 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.200 | 22.776 | 0.301 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 219 | P219 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 220 | P220 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 221 | P221 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 22.000 | 96.360 | 1.275 |
| 222 | P222 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 21.000 | 91.980 | 1.217 |
| 223 | P223 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 224 | P224 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 225 | P225 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 226 | P226 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 227 | P227 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 228 | P228 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 229 | P229 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 230 | P230 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 231 | P231 | 1/2" | Copper | Type K | 0.000059 | 0.527 | 0.049 | 0.625 | 2.000 | 0.690 | 0.003 |
| 232 | P232 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 233 | P233 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 6.000 | 12.438 | 0.126 |
| 234 | P234 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 9.000 | 18.657 | 0.188 |
| 235 | P235 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 9.000 | 18.657 | 0.188 |
| 236 | P236 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 6.000 | 12.438 | 0.126 |
| 237 | P237 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.500 | 45.990 | 0.609 |
| 238 | P238 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 239 | P239 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 240 | P240 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 241 | P241 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 242 | P242 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 243 | P243 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 2.000 | 4.146 | 0.042 |
| 244 | P244 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 245 | P245 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 2.000 | 8.760 | 0.116 |
| 246 | P246 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.500 | 45.990 | 0.609 |
| 247 | P247 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.000 | 43.800 | 0.580 |
| 248 | P248 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.800 | 25.404 | 0.336 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 249 | P249 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 4.000 | 17.520 | 0.232 |
| 250 | P250 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 12.500 | 54.750 | 0.725 |
| 251 | P251 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 3.000 | 13.140 | 0.174 |
| 252 | P252 | 4" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 4.260 | 0.120 | 4.500 | 43.500 | 246.906 | 4.306 |
| 253 | P253 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.000 | 43.800 | 0.580 |
| 254 | P254 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 5.800 | 25.404 | 0.336 |
| 255 | P255 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 4.000 | 17.520 | 0.232 |
| 256 | P256 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 12.500 | 54.750 | 0.725 |
| 257 | P257 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 3.000 | 13.140 | 0.174 |
| 258 | P258 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 26.000 | 113.880 | 1.507 |
| 259 | P259 | 4" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 4.260 | 0.120 | 4.500 | 43.500 | 246.906 | 4.306 |
| 260 | P260 | 4" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 4.260 | 0.120 | 4.500 | 36.000 | 204.336 | 3.563 |
| 261 | P261 | 4" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 4.260 | 0.120 | 4.500 | 10.000 | 56.760 | 0.990 |
| 262 | P262 | 4" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 4.260 | 0.120 | 4.500 | 10.000 | 56.760 | 0.990 |
| 263 | P263 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 264 | P264 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 10.000 | 43.800 | 0.580 |
| 265 | P265 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 266 | P266 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 6.000 | 21.420 | 0.227 |
| 267 | P267 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.800 | 9.996 | 0.106 |
| 268 | P268 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 1.000 | 3.570 | 0.038 |
| 269 | P269 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 8.500 | 30.345 | 0.322 |
| 270 | P270 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 271 | P271 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 5.500 | 11.594 | 0.085 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 272 | P272 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 9.000 | 18.972 | 0.139 |
| 273 | P273 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 4.160 | 14.851 | 0.158 |
| 274 | P274 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 12.830 | 45.803 | 0.486 |
| 275 | P275 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 6.000 | 21.420 | 0.227 |
| 276 | P276 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 6.750 | 24.098 | 0.256 |
| 277 | P277 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 1.500 | 5.355 | 0.057 |
| 278 | P278 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 19.670 | 70.222 | 0.745 |
| 279 | P279 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 8.750 | 31.237 | 0.331 |
| 280 | P280 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 4.000 | 16.084 | 0.184 |
| 281 | P281 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 4.000 | 16.084 | 0.184 |
| 282 | P282 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 9.650 | 38.803 | 0.445 |
| 283 | P283 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 8.650 | 34.782 | 0.399 |
| 284 | P284 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 7.640 | 30.720 | 0.352 |
| 288 | P288 | 1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 0.674 | 0.083 | 0.840 | 7.640 | 5.180 | 0.019 |
| 289 | P289 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 8.650 | 34.782 | 0.399 |
| 290 | P290 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 9.650 | 38.803 | 0.445 |
| 291 | P291 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 4.000 | 16.084 | 0.184 |
| 292 | P292 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 4.000 | 16.084 | 0.184 |
| 293 | P293 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 8.750 | 31.237 | 0.331 |
| 294 | P294 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 19.670 | 70.222 | 0.745 |
| 295 | P295 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 1.500 | 5.355 | 0.057 |
| 296 | P296 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 6.750 | 24.098 | 0.256 |
| 297 | P297 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 6.000 | 21.420 | 0.227 |
| 298 | P298 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 12.830 | 45.803 | 0.486 |
| 299 | P299 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 6.300 | 22.491 | 0.239 |
| 300 | P300 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.800 | 9.996 | 0.106 |
| 301 | P301 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 1.000 | 3.570 | 0.038 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 302 | P302 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 8.500 | 30.345 | 0.322 |
| 303 | P303 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 4.000 | 14.280 | 0.151 |
| 304 | P304 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 5.500 | 11.594 | 0.085 |
| 305 | P305 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 9.000 | 18.972 | 0.139 |
| 306 | P306 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 0.500 | 2.190 | 0.029 |
| 307 | P307 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 28.200 | 100.674 | 1.068 |
| 308 | P308 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 24.300 | 86.751 | 0.920 |
| 309 | P309 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 310 | P310 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 2.000 | 4.216 | 0.031 |
| 311 | P311 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 2.000 | 4.216 | 0.031 |
| 312 | P312 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 11.500 | 2.495 | 0.043 |
| 313 | P313 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 1.000 | 0.217 | 0.004 |
| 314 | P314 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 11.500 | 2.495 | 0.043 |
| 315 | P315 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 1.000 | 3.570 | 0.038 |
| 316 | P316 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 36.500 | 130.305 | 1.382 |
| 317 | P317 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 24.500 | 87.465 | 0.928 |
| 318 | P318 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 319 | P319 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 1.000 | 0.217 | 0.004 |
| 320 | P320 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 321 | P321 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 8.500 | 1.845 | 0.031 |
| 322 | P322 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 1.000 | 0.217 | 0.004 |
| 323 | P323 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 324 | P324 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 1.000 | 0.217 | 0.004 |
| 325 | P325 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 1.000 | 2.108 | 0.015 |
| 326 | P326 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 8.500 | 1.845 | 0.031 |
| 327 | P327 | 1-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 1.682 | 0.109 | 1.900 | 1.000 | 2.108 | 0.015 |
| 328 | P328 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 6.000 | 1.302 | 0.022 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 329 | P329 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 8.000 | 1.736 | 0.030 |
| 330 | P330 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 2.000 | 0.434 | 0.007 |
| 331 | P331 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 2.000 | 0.434 | 0.007 |
| 332 | P332 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 2.000 | 0.434 | 0.007 |
| 333 | P333 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 2.000 | 0.434 | 0.007 |
| 334 | P334 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 335 | P335 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 336 | P336 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 2.000 | 0.434 | 0.007 |
| 337 | P337 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 338 | P338 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 8.000 | 1.736 | 0.030 |
| 339 | P339 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 6.000 | 1.302 | 0.022 |
| 340 | P340 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 2.000 | 7.140 | 0.076 |
| 341 | P341 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 3.000 | 12.063 | 0.138 |
| 342 | P342 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 6.000 | 5.058 | 0.032 |
| 343 | P343 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 3.000 | 2.529 | 0.016 |
| 344 | P344 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 6.000 | 5.058 | 0.032 |
| 345 | P345 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 3.000 | 12.063 | 0.138 |
| 346 | P346 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 16.000 | 64.336 | 0.737 |
| 347 | P347 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 7.640 | 30.720 | 0.352 |
| 348 | P348 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 3.000 | 12.063 | 0.138 |
| 349 | P349 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 3.000 | 12.063 | 0.138 |
| 350 | P350 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 7.600 | 30.560 | 0.350 |
| 351 | P351 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 16.000 | 64.336 | 0.737 |
| 352 | P352 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 6.000 | 5.058 | 0.032 |
| 353 | P353 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 3.000 | 2.529 | 0.016 |
| 354 | P354 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 6.000 | 5.058 | 0.032 |
| 355 | P355 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 6.000 | 5.058 | 0.032 |
| 356 | P356 | 2-1/2" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 2.635 | 0.120 | 2.875 | 12.900 | 46.053 | 0.489 |
| 357 | P357 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 3.000 | 2.529 | 0.016 |
| 358 | P358 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 6.000 | 5.058 | 0.032 |
| 359 | P359 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 3.000 | 12.063 | 0.138 |
| 360 | P360 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 3.000 | 12.063 | 0.138 |
| 361 | P361 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 362 | P362 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 363 | P363 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 364 | P364 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 365 | P365 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |
| 366 | P366 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 367 | P367 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 368 | P368 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 369 | P369 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 370 | P370 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |
| 371 | P371 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.000 | 0.843 | 0.005 |
| 372 | P372 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 373 | P373 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 14.000 | 9.016 | 0.042 |
| 374 | P374 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 1.500 | 3.109 | 0.031 |
| 375 | P375 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 376 | P376 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.000 | 0.843 | 0.005 |
| 377 | P377 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |
| 378 | P378 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 14.000 | 9.016 | 0.042 |
| 379 | P379 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |
| 380 | P380 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 381 | P381 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 382 | P382 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 383 | P383 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 1.500 | 3.109 | 0.031 |
| 384 | P384 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 6.000 | 1.302 | 0.022 |
| 385 | P385 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 3.000 | 0.651 | 0.011 |
| 389 | P389 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 14.000 | 9.016 | 0.042 |
| 390 | P390 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.000 | 0.843 | 0.005 |
| 391 | P391 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 392 | P392 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 393 | P393 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 394 | P394 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 14.000 | 9.016 | 0.042 |
| 395 | P395 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.000 | 0.843 | 0.005 |
| 396 | P396 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 397 | P397 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 398 | P398 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 399 | P399 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 400 | P400 | 3" | Stainless Steel (ANSI) | Sch. 10S | 0.001811 | 3.260 | 0.120 | 3.500 | 1.000 | 4.380 | 0.058 |
| 401 | P401 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |

| Pipe Id | Pipe Name | Nominal Size | Material | Schedule Class | Roughness inch | Inner Diameter inch | Wall Thickness inch | Outer Diameter inch | Length ft | Weight lbs (full length) | Internal Volume ft ³ |
|---------|-----------|--------------|------------|----------------|----------------|---------------------|---------------------|---------------------|-----------|--------------------------|---------------------------------|
| 402 | P402 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 403 | P403 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 404 | P404 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 405 | P405 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |
| 406 | P406 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 407 | P407 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 408 | P408 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 409 | P409 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 1.500 | 3.109 | 0.031 |
| 410 | P410 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |
| 411 | P411 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 412 | P412 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 413 | P413 | 1" | Copper | Type K | 0.000059 | 0.995 | 0.065 | 1.125 | 1.500 | 1.264 | 0.008 |
| 414 | P414 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 415 | P415 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 416 | P416 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 6.000 | 3.864 | 0.018 |
| 417 | P417 | 3/4" | Copper | Type K | 0.000059 | 0.745 | 0.065 | 0.875 | 3.000 | 1.932 | 0.009 |
| 418 | P418 | 2" | Copper | Type K | 0.000059 | 1.959 | 0.083 | 2.125 | 1.500 | 3.109 | 0.031 |
| 419 | P419 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 6.000 | 24.126 | 0.277 |
| 420 | P420 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 20.700 | 83.235 | 0.954 |
| 422 | P422 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 20.700 | 83.235 | 0.954 |
| 423 | P423 | 3" | Copper | Type K | 0.000059 | 2.907 | 0.109 | 3.125 | 6.000 | 24.126 | 0.277 |
| 425 | P425 | 3/4" | PVC (ANSI) | Sch. 40 | 0.000197 | 0.824 | 0.113 | 1.050 | 6.000 | 1.302 | 0.022 |

Pipe Fittings

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 1 | P1 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 1 | P1 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 2 | P2 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 2 | P2 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 3 | P3 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 4 | P4 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 4 | P4 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 5 | P5 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 5 | P5 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 6 | P6 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 16 | P16 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 16 | P16 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 17 | P17 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 17 | P17 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 18 | P18 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 19 | P19 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 19 | P19 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 20 | P20 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 20 | P20 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallIFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 21 | P21 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 22 | P22 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 22 | P22 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallIFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 23 | P23 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 23 | P23 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallIFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 24 | P24 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 25 | P25 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 25 | P25 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallIFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 26 | P26 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 26 | P26 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallIFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 27 | P27 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 28 | P28 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 29 | P29 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 30 | P30 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 31 | P31 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 32 | P32 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 33 | P33 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 34 | P34 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 35 | P35 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 36 | P36 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 37 | P37 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 38 | P38 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 39 | P39 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 40 | P40 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 41 | P41 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 42 | P42 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 43 | P43 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 50 | P50 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 50 | P50 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 51 | P51 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 51 | P51 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 52 | P52 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 53 | P53 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 53 | P53 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 54 | P54 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 54 | P54 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 55 | P55 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 56 | P56 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 56 | P56 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 57 | P57 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 57 | P57 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 58 | P58 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 59 | P59 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 59 | P59 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 60 | P60 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 60 | P60 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 61 | P61 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 62 | P62 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 62 | P62 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 63 | P63 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 63 | P63 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 64 | P64 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 65 | P65 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 65 | P65 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 66 | P66 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 66 | P66 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 67 | P67 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 71 | P71 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.3800 | 0.0000 |
| 72 | P72 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 73 | P73 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 74 | P74 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 75 | P75 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 76 | P76 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 77 | P77 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 78 | P78 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 79 | P79 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 80 | P80 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 81 | P81 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 82 | P82 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 83 | P83 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 84 | P84 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 85 | P85 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 86 | P86 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 87 | P87 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 87 | P87 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 88 | P88 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 88 | P88 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 89 | P89 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 90 | P90 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 90 | P90 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 91 | P91 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 91 | P91 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 92 | P92 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 93 | P93 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 93 | P93 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 94 | P94 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 94 | P94 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 95 | P95 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 96 | P96 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 96 | P96 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 97 | P97 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 97 | P97 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 98 | P98 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 99 | P99 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 99 | P99 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 100 | P100 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 100 | P100 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 101 | P101 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 102 | P102 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 102 | P102 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 103 | P103 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 103 | P103 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 104 | P104 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 105 | P105 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 106 | P106 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 107 | P107 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 108 | P108 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 109 | P109 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 110 | P110 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 111 | P111 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 112 | P112 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 113 | P113 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 114 | P114 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 115 | P115 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| 115 | P115 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 1.0800 | 1.0200 |
| 116 | P116 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| 116 | P116 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 0.5300 | 1.0200 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 117 | P117 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |
| 118 | P118 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| 118 | P118 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 0.3600 | 1.0200 |
| 119 | P119 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |
| 120 | P120 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |
| 121 | P121 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 122 | P122 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 123 | P123 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 124 | P124 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 125 | P125 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| 125 | P125 | End of Pipe | Gradual enlargement | 2" | 50 mm | GrEn | 0.3100 | 1 | 0.3100 | | |
| 125 | P125 | End of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.3800 | 0.3700 |
| 126 | P126 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| 126 | P126 | End of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| 126 | P126 | End of Pipe | Gradual enlargement | 2" | 50 mm | GrEn | 0.3100 | 1 | 0.3100 | | |
| | | | | | | | | | | 0.3800 | 0.3700 |
| 127 | P127 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| 127 | P127 | End of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| 127 | P127 | End of Pipe | Gradual enlargement | 2" | 50 mm | GrEn | 0.3100 | 1 | 0.3100 | | |
| | | | | | | | | | | 0.3800 | 0.3700 |
| 128 | P128 | No Fittings | | | | | | | | | |
| 129 | P129 | No Fittings | | | | | | | | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 130 | P130 | No Fittings | | | | | | | | | |
| 131 | P131 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 132 | P132 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 134 | P134 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 135 | P135 | No Fittings | | | | | | | | | |
| 137 | P137 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 138 | P138 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 138 | P138 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 139 | P139 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 140 | P140 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 140 | P140 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 141 | P141 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 142 | P142 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 143 | P143 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 144 | P144 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 144 | P144 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 145 | P145 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 146 | P146 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 146 | P146 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 150 | P150 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 151 | P151 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.5300 | 0.0000 |
| 152 | P152 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 153 | P153 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| 153 | P153 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 0.3600 | 1.0200 |
| 154 | P154 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |
| 155 | P155 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 156 | P156 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 157 | P157 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 158 | P158 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 159 | P159 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| 159 | P159 | End of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.3800 | 0.0600 |
| 160 | P160 | End of Pipe | Gradual enlargement | 2" | 50 mm | GrEn | 0.3100 | 1 | 0.3100 | | |
| | | | | | | | | | | 0.0000 | 0.3100 |
| 161 | P161 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 162 | P162 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 163 | P163 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 164 | P164 | No Fittings | | | | | | | | | |
| 165 | P165 | No Fittings | | | | | | | | | |
| 166 | P166 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 167 | P167 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 168 | P168 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 169 | P169 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 170 | P170 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 171 | P171 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| 171 | P171 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 0.5300 | 1.0200 |
| 172 | P172 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 172 | P172 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 173 | P173 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 174 | P174 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 174 | P174 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 178 | P178 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 179 | P179 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 180 | P180 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 181 | P181 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 182 | P182 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 182 | P182 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 183 | P183 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 184 | P184 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 184 | P184 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 185 | P185 | No Fittings | | | | | | | | | |
| 186 | P186 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 187 | P187 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 188 | P188 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 189 | P189 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| 189 | P189 | End of Pipe | Gradual enlargement | 2" | 50 mm | GrEn | 0.3100 | 1 | 0.3100 | | |
| | | | | | | | | | | 0.0600 | 0.3100 |
| 190 | P190 | No Fittings | | | | | | | | | |
| 191 | P191 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 192 | P192 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 193 | P193 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 194 | P194 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 195 | P195 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 196 | P196 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 197 | P197 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 198 | P198 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| 198 | P198 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 0.5300 | 1.0200 |
| 199 | P199 | No Fittings | | | | | | | | | |
| 200 | P200 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 200 | P200 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 201 | P201 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 202 | P202 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 202 | P202 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 203 | P203 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 203 | P203 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 204 | P204 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 205 | P205 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 205 | P205 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 206 | P206 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 206 | P206 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 207 | P207 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 208 | P208 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 208 | P208 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 209 | P209 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |
| 210 | P210 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 211 | P211 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 212 | P212 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 213 | P213 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 214 | P214 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 215 | P215 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| 215 | P215 | End of Pipe | Gradual enlargement | 2" | 50 mm | GrEn | 0.3100 | 1 | 0.3100 | | |
| | | | | | | | | | | 0.0600 | 0.3100 |
| 216 | P216 | No Fittings | | | | | | | | | |
| 217 | P217 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.5300 | 0.0000 |
| 218 | P218 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 219 | P219 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 220 | P220 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 221 | P221 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 222 | P222 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 223 | P223 | No Fittings | | | | | | | | | |
| 224 | P224 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 224 | P224 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 225 | P225 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 226 | P226 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 226 | P226 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 227 | P227 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 227 | P227 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 228 | P228 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 229 | P229 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 229 | P229 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 230 | P230 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 230 | P230 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5000 | 0.0800 |
| 231 | P231 | Start of Pipe | Branch Tee | 1/2" | 15 mm | BT | 1.6200 | 1 | 1.6200 | | |
| | | | | | | | | | | 1.6200 | 0.0000 |
| 232 | P232 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 232 | P232 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 233 | P233 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 234 | P234 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| | | | | | | | | | | 0.3800 | 0.0000 |
| 235 | P235 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 236 | P236 | Start of Pipe | Branch Tee | 2" | 50 mm | BT | 1.1400 | 1 | 1.1400 | | |
| | | | | | | | | | | 1.1400 | 0.0000 |
| 237 | P237 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 238 | P238 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 239 | P239 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| 239 | P239 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 0.5300 | 1.0200 |
| 240 | P240 | No Fittings | | | | | | | | | |
| 241 | P241 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |
| 242 | P242 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 243 | P243 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| 243 | P243 | End of Pipe | Gradual enlargement | 2" | 50 mm | GrEn | 0.3100 | 1 | 0.3100 | | |
| | | | | | | | | | | 0.0600 | 0.3100 |
| 244 | P244 | No Fittings | | | | | | | | | |
| 245 | P245 | No Fittings | | | | | | | | | |
| 246 | P246 | No Fittings | | | | | | | | | |
| 247 | P247 | No Fittings | | | | | | | | | |
| 248 | P248 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| 248 | P248 | Start of Pipe | Ball Valve Full Bore | 3" | 80 mm | BallFB | 0.0500 | 1 | 0.0500 | | |
| | | | | | | | | | | 0.5800 | 0.0000 |
| 249 | P249 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 250 | P250 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 251 | P251 | Start of Pipe | Elbow 45 deg. | 3" | 80 mm | E45 | 0.2800 | 1 | 0.2800 | | |
| 251 | P251 | End of Pipe | Gradual enlargement | 3" | 80 mm | GrEn | 0.1900 | 1 | 0.1900 | | |
| | | | | | | | | | | 0.2800 | 0.1900 |
| 252 | P252 | Start of Pipe | Elbow 45 deg. | 4" | 100 mm | E45 | 0.2700 | 1 | 0.2700 | | |
| | | | | | | | | | | 0.2700 | 0.0000 |
| 253 | P253 | No Fittings | | | | | | | | | |
| 254 | P254 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| 254 | P254 | End of Pipe | Ball Valve Full Bore | 3" | 80 mm | BallFB | 0.0500 | 1 | 0.0500 | | |
| | | | | | | | | | | 0.5300 | 0.0500 |
| 255 | P255 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 256 | P256 | Start of Pipe | Elbow 45 deg. | 3" | 80 mm | E45 | 0.2800 | 1 | 0.2800 | | |
| | | | | | | | | | | 0.2800 | 0.0000 |
| 257 | P257 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 258 | P258 | No Fittings | | | | | | | | | |
| 259 | P259 | End of Pipe | Gradual contraction | 4" | 100 mm | GrCon | 0.5000 | 1 | 0.5000 | | |
| | | | | | | | | | | 0.0000 | 0.5000 |
| 260 | P260 | Start of Pipe | Standard Bend | 4" | 100 mm | SB | 0.5100 | 1 | 0.5100 | | |
| | | | | | | | | | | 0.5100 | 0.0000 |
| 261 | P261 | No Fittings | | | | | | | | | |
| 262 | P262 | Start of Pipe | Standard Bend | 4" | 100 mm | SB | 0.5100 | 1 | 0.5100 | | |
| | | | | | | | | | | 0.5100 | 0.0000 |
| 263 | P263 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| 263 | P263 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 1.0200 | 1 | 1.0200 | | |
| | | | | | | | | | | 1.0800 | 1.0200 |
| 264 | P264 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 265 | P265 | Start of Pipe | Elbow 45 deg. | 2-1/2" | 65 mm | E45 | 0.2900 | 1 | 0.2900 | | |
| | | | | | | | | | | 0.2900 | 0.0000 |
| 266 | P266 | Start of Pipe | Elbow 45 deg. | 2-1/2" | 65 mm | E45 | 0.2900 | 1 | 0.2900 | | |
| | | | | | | | | | | 0.2900 | 0.0000 |
| 267 | P267 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.5400 | 0.0000 |
| 268 | P268 | Start of Pipe | Branch Tee | 2-1/2" | 65 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 269 | P269 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 270 | P270 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| 270 | P270 | End of Pipe | Gradual contraction 2.5" to 1.5" | 2-1/2" | 65 mm | GrCon | 1.7500 | 1 | 1.7500 | | |
| | | | | | | | | | | 0.5400 | 1.7500 |
| 271 | P271 | Start of Pipe | Standard Bend | 1-1/2" | 40 mm | SB | 0.6300 | 1 | 0.6300 | | |
| | | | | | | | | | | 0.6300 | 0.0000 |
| 272 | P272 | Start of Pipe | Standard Bend | 1-1/2" | 40 mm | SB | 0.6300 | 1 | 0.6300 | | |
| | | | | | | | | | | 0.6300 | 0.0000 |
| 273 | P273 | Start of Pipe | Branch Tee | 2-1/2" | 65 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 274 | P274 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 275 | P275 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 276 | P276 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 277 | P277 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 278 | P278 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 279 | P279 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| 279 | P279 | End of Pipe | Gradual enlargement | 2-1/2" | 65 mm | GrEn | 0.0900 | 1 | 0.0900 | | |
| 279 | P279 | End of Pipe | Ball Valve Full Bore | 2-1/2" | 65 mm | BallFB | 0.0500 | 1 | 0.0500 | | |
| | | | | | | | | | | 0.5400 | 0.1400 |
| 280 | P280 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 281 | P281 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 282 | P282 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 283 | P283 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.5300 | 0.0000 |
| 284 | P284 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 288 | P288 | Start of Pipe | Through Tee | 1/2" | 15 mm | TT | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 289 | P289 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 290 | P290 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 291 | P291 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 292 | P292 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| 292 | P292 | End of Pipe | Gradual contraction | 3" | 80 mm | GrCon | 0.2200 | 1 | 0.2200 | | |
| | | | | | | | | | | 0.5300 | 0.2200 |
| 293 | P293 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| 293 | P293 | Start of Pipe | Ball Valve Full Bore | 2-1/2" | 65 mm | BallFB | 0.0500 | 1 | 0.0500 | | |
| | | | | | | | | | | 0.5900 | 0.0000 |
| 294 | P294 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 295 | P295 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 296 | P296 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 297 | P297 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 298 | P298 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 299 | P299 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 300 | P300 | Start of Pipe | Branch Tee | 2-1/2" | 65 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 301 | P301 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 302 | P302 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 303 | P303 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|-------------------------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 304 | P304 | Start of Pipe | Standard Bend | 1-1/2" | 40 mm | SB | 0.6300 | 1 | 0.6300 | | |
| 304 | P304 | End of Pipe | Gradual enlargement 1.5" to 2.5" | 1-1/2" | 40 mm | GrEn | 0.4100 | 1 | 0.4100 | | |
| | | | | | | | | | | 0.6300 | 0.4100 |
| 305 | P305 | Start of Pipe | Standard Bend | 1-1/2" | 40 mm | SB | 0.6300 | 1 | 0.6300 | | |
| | | | | | | | | | | 0.6300 | 0.0000 |
| 306 | P306 | No Fittings | | | | | | | | | |
| 307 | P307 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| 307 | P307 | End of Pipe | Gradual enlargement | 2-1/2" | 65 mm | GrEn | 0.0900 | 1 | 0.0900 | | |
| | | | | | | | | | | 0.5400 | 0.0900 |
| 308 | P308 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 309 | P309 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 310 | P310 | Start of Pipe | Through Tee | 1-1/2" | 40 mm | TT | 0.4200 | 1 | 0.4200 | | |
| | | | | | | | | | | 0.4200 | 0.0000 |
| 311 | P311 | Start of Pipe | Standard Bend | 1-1/2" | 40 mm | SB | 0.6300 | 1 | 0.6300 | | |
| | | | | | | | | | | 0.6300 | 0.0000 |
| 312 | P312 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 312 | P312 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 313 | P313 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 314 | P314 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| 314 | P314 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 0.7500 | 0.0800 |
| 315 | P315 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 316 | P316 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 317 | P317 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 318 | P318 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 319 | P319 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.7500 | 0.0000 |
| 320 | P320 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 321 | P321 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| 321 | P321 | Start of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 1.5800 | 0.0000 |
| 322 | P322 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 323 | P323 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 324 | P324 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 325 | P325 | Start of Pipe | Through Tee | 1-1/2" | 40 mm | TT | 0.4200 | 1 | 0.4200 | | |
| | | | | | | | | | | 0.4200 | 0.0000 |
| 326 | P326 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| 326 | P326 | End of Pipe | Ball Valve Full Bore | 3/4" | 20 mm | BallFB | 0.0800 | 1 | 0.0800 | | |
| | | | | | | | | | | 0.7500 | 0.0800 |
| 327 | P327 | Start of Pipe | Branch Tee | 1-1/2" | 40 mm | BT | 1.2600 | 1 | 1.2600 | | |
| | | | | | | | | | | 1.2600 | 0.0000 |
| 328 | P328 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 329 | P329 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 330 | P330 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 331 | P331 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 332 | P332 | Start of Pipe | Through Tee | 3/4" | 20 mm | TT | 0.5000 | 1 | 0.5000 | | |
| | | | | | | | | | | 0.5000 | 0.0000 |
| 333 | P333 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 334 | P334 | Start of Pipe | Through Tee | 2-1/2" | 65 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 335 | P335 | Start of Pipe | Branch Tee | 2-1/2" | 65 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 336 | P336 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|---------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 337 | P337 | Start of Pipe | Through Tee | 2-1/2" | 65 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 338 | P338 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 339 | P339 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 340 | P340 | Start of Pipe | Through Tee | 2-1/2" | 65 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 341 | P341 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 342 | P342 | Start of Pipe | Standard Bend | 1" | 25 mm | SB | 0.6900 | 1 | 0.6900 | | |
| | | | | | | | | | | 0.6900 | 0.0000 |
| 343 | P343 | No Fittings | | | | | | | | | |
| 344 | P344 | No Fittings | | | | | | | | | |
| 345 | P345 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 346 | P346 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 347 | P347 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 348 | P348 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 349 | P349 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 350 | P350 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 351 | P351 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 352 | P352 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 353 | P353 | No Fittings | | | | | | | | | |
| 354 | P354 | No Fittings | | | | | | | | | |
| 355 | P355 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 356 | P356 | Start of Pipe | Standard Bend | 2-1/2" | 65 mm | SB | 0.5400 | 1 | 0.5400 | | |
| | | | | | | | | | | 0.5400 | 0.0000 |
| 357 | P357 | No Fittings | | | | | | | | | |
| 358 | P358 | No Fittings | | | | | | | | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 359 | P359 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 360 | P360 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 361 | P361 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 362 | P362 | No Fittings | | | | | | | | | |
| 363 | P363 | No Fittings | | | | | | | | | |
| 364 | P364 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 365 | P365 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 366 | P366 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 367 | P367 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 368 | P368 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 369 | P369 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 370 | P370 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 371 | P371 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 372 | P372 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 373 | P373 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 374 | P374 | End of Pipe | Gradual contraction | 2" | 50 mm | GrCon | 4.2400 | 1 | 4.2400 | | |
| 374 | P374 | End of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0000 | 4.3000 |
| 375 | P375 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 376 | P376 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 377 | P377 | No Fittings | | | | | | | | | |
| 378 | P378 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.7500 | 0.0000 |
| 379 | P379 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| 379 | P379 | End of Pipe | Gradual enlargement | 1" | 25 mm | GrEn | 0.5600 | 1 | 0.5600 | | |
| | | | | | | | | | | 1.3800 | 0.5600 |
| 380 | P380 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 381 | P381 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 382 | P382 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 383 | P383 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.0600 | 0.0000 |
| 384 | P384 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 385 | P385 | No Fittings | | | | | | | | | |
| 389 | P389 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 390 | P390 | Start of Pipe | Through Tee | 1" | 25 mm | TT | 0.4600 | 1 | 0.4600 | | |
| | | | | | | | | | | 0.4600 | 0.0000 |
| 391 | P391 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 392 | P392 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 393 | P393 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 394 | P394 | Start of Pipe | Through Tee | 3/4" | 20 mm | TT | 0.5000 | 1 | 0.5000 | | |
| | | | | | | | | | | 0.5000 | 0.0000 |
| 395 | P395 | Start of Pipe | Through Tee | 1" | 25 mm | TT | 0.4600 | 1 | 0.4600 | | |
| | | | | | | | | | | 0.4600 | 0.0000 |
| 396 | P396 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 397 | P397 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 398 | P398 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 399 | P399 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| 400 | P400 | Start of Pipe | Through Tee | 3" | 80 mm | TT | 0.3600 | 1 | 0.3600 | | |
| | | | | | | | | | | 0.3600 | 0.0000 |
| 401 | P401 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 402 | P402 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 403 | P403 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 404 | P404 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 405 | P405 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| | | | | | | | | | | 1.3800 | 0.0000 |
| 406 | P406 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 407 | P407 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 408 | P408 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 409 | P409 | Start of Pipe | Through Tee | 2" | 50 mm | TT | 0.3800 | 1 | 0.3800 | | |
| 409 | P409 | End of Pipe | Gradual contraction | 2" | 50 mm | GrCon | 4.2400 | 1 | 4.2400 | | |
| 409 | P409 | End of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.3800 | 4.3000 |
| 410 | P410 | Start of Pipe | Standard Bend | 1" | 25 mm | SB | 0.6900 | 1 | 0.6900 | | |
| | | | | | | | | | | 0.6900 | 0.0000 |
| 411 | P411 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 412 | P412 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 413 | P413 | Start of Pipe | Branch Tee | 1" | 25 mm | BT | 1.3800 | 1 | 1.3800 | | |
| 413 | P413 | End of Pipe | Gradual enlargement | 1" | 25 mm | GrEn | 0.5600 | 1 | 0.5600 | | |
| | | | | | | | | | | 1.3800 | 0.5600 |
| 414 | P414 | Start of Pipe | Branch Tee | 3/4" | 20 mm | BT | 1.5000 | 1 | 1.5000 | | |
| | | | | | | | | | | 1.5000 | 0.0000 |
| 415 | P415 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 416 | P416 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |

| Pipe Id | Pipe | Fitting Position | Description | Imperial Size | Metric Size | Database Ref | K Value | Quantity | K Total | Entry K Total | Exit K Total |
|---------|------|------------------|----------------------|---------------|-------------|--------------|---------|----------|---------|---------------|--------------|
| | | | | | | | | | | 0.7500 | 0.0000 |
| 417 | P417 | Start of Pipe | Standard Bend | 3/4" | 20 mm | SB | 0.7500 | 1 | 0.7500 | | |
| | | | | | | | | | | 0.7500 | 0.0000 |
| 418 | P418 | Start of Pipe | Standard Bend | 2" | 50 mm | SB | 0.5700 | 1 | 0.5700 | | |
| 418 | P418 | Start of Pipe | Ball Valve Full Bore | 2" | 50 mm | BallFB | 0.0600 | 1 | 0.0600 | | |
| | | | | | | | | | | 0.6300 | 0.0000 |
| 419 | P419 | No Fittings | | | | | | | | | |
| 420 | P420 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 422 | P422 | Start of Pipe | Branch Tee | 3" | 80 mm | BT | 1.0800 | 1 | 1.0800 | | |
| | | | | | | | | | | 1.0800 | 0.0000 |
| 423 | P423 | Start of Pipe | Standard Bend | 3" | 80 mm | SB | 0.5300 | 1 | 0.5300 | | |
| | | | | | | | | | | 0.5300 | 0.0000 |
| 425 | P425 | No Fittings | | | | | | | | | |

Components

| Pipe Id | Pipe Name | Inner Diameter inch | Comp. Name | Comp. Type | Comp. Value | Flow US gpm | Mass Flow lb/sec | Comp. Loss psi |
|---------|-----------|------------------------|------------|----------------|-------------|-------------|------------------|----------------|
| 3 | P3 | 0.527 | 3C9 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 6 | P6 | 0.527 | 3C8 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 18 | P18 | 0.527 | 3C4 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 21 | P21 | 0.527 | 3C3 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 24 | P24 | 0.527 | 3C2 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 27 | P27 | 0.527 | 3C1 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 52 | P52 | 0.527 | 3B7 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 55 | P55 | 0.527 | 3B6 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 58 | P58 | 0.527 | 3B5 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 61 | P61 | 0.527 | 3B4 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 64 | P64 | 0.527 | 3B3 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 67 | P67 | 0.527 | 3B2 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 89 | P89 | 0.527 | 3A6 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 92 | P92 | 0.527 | 3A5 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 95 | P95 | 0.527 | 3A4 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 98 | P98 | 0.527 | 3A3 | Fixed Loss psi | 6.4000 | 4.00 | 0.5552 | 6.4000 |
| 101 | P101 | 0.527 | 3A2 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 104 | P104 | 0.527 | 3A1 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 139 | P139 | 0.527 | 2E3 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 145 | P145 | 0.527 | 2E2 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 173 | P173 | 0.527 | 1E3 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 183 | P183 | 0.527 | 1E1 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 201 | P201 | 0.527 | 1W1 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 204 | P204 | 0.527 | 1W2 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 207 | P207 | 0.527 | 1W3 | Fixed Loss psi | 6.4000 | 8.00 | 1.1105 | 6.4000 |
| 225 | P225 | 0.527 | 2W1 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 228 | P228 | 0.527 | 2W2 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 231 | P231 | 0.527 | 2W3 | Fixed Loss psi | 6.4000 | 6.00 | 0.8329 | 6.4000 |
| 320 | P320 | 0.745 | CH#1 | Fixed Loss psi | 10.0000 | 15.00 | 2.0822 | 10.0000 |
| 323 | P323 | 0.745 | CH#2 | Fixed Loss psi | 10.0000 | 2.00 | 0.2776 | 10.0000 |
| 331 | P331 | 0.824 | MVTX 3 | Fixed Loss psi | 5.0000 | 2.00 | 0.2776 | 5.0000 |
| 333 | P333 | 0.824 | MVTX 2 | Fixed Loss psi | 5.0000 | 2.00 | 0.2776 | 5.0000 |
| 335 | P335 | 2.635 | MVTX 1 | Fixed Loss psi | 5.0000 | 1.00 | 0.1388 | 5.0000 |

| Pipe Id | Pipe Name | Inner Diameter inch | Comp. Name | Comp. Type | Comp. Value | Flow US gpm | Mass Flow lb/sec | Comp. Loss psi |
|---------|-----------|------------------------|------------------------|----------------|-------------|-------------|------------------|----------------|
| 343 | P343 | 0.995 | PRR3.2 | Fixed Loss psi | 10.0000 | 6.00 | 0.8329 | 10.0000 |
| 353 | P353 | 0.995 | PRR4.1 | Fixed Loss psi | 10.0000 | 8.00 | 1.1105 | 10.0000 |
| 357 | P357 | 0.995 | PRR4.2 | Fixed Loss psi | 10.0000 | 8.00 | 1.1105 | 10.0000 |
| 362 | P362 | 0.745 | Trigger Rack | Fixed Loss psi | 10.0000 | 8.00 | 1.1105 | 10.0000 |
| 367 | P367 | 0.745 | EMCal Pre-amp Panel | Fixed Loss psi | 10.0000 | 6.50 | 0.9023 | 10.0000 |
| 372 | P372 | 0.745 | INTT S Big Wheel | Fixed Loss psi | 10.0000 | 3.00 | 0.4164 | 10.0000 |
| 381 | P381 | 0.745 | EMCal Pre-amp Panel | Fixed Loss psi | 10.0000 | 6.50 | 0.9023 | 10.0000 |
| 382 | P382 | 0.745 | INTT N Big Wheel | Fixed Loss psi | 10.0000 | 3.00 | 0.4164 | 10.0000 |
| 385 | P385 | 0.824 | Port. A/C Unit | Fixed Loss psi | 10.0000 | 15.00 | 2.0822 | 10.0000 |
| 392 | P392 | 0.745 | sEPD S Box | Fixed Loss psi | 10.0000 | 0.50 | 0.0694 | 10.0000 |
| 397 | P397 | 0.745 | sEPD N Box | Fixed Loss psi | 10.0000 | 0.50 | 0.0694 | 10.0000 |
| 403 | P403 | 0.745 | TPC S Laser Box | Fixed Loss psi | 10.0000 | 3.00 | 0.4164 | 10.0000 |
| 407 | P407 | 0.745 | EMCal Pre-amp Panel | Fixed Loss psi | 10.0000 | 6.50 | 0.9023 | 10.0000 |
| 415 | P415 | 0.745 | TPC N Laser Box | Fixed Loss psi | 10.0000 | 3.00 | 0.4164 | 10.0000 |
| 417 | P417 | 0.745 | EMCal Pre-amp Panel | Fixed Loss psi | 10.0000 | 6.50 | 0.9023 | 10.0000 |

Flow Control Valves (FCVs)

| Pipe Id | Pipe Name | Inner Diameter inch | FCV Name | FCV Mass Flow lb/sec | FCV Vol Flow US gpm | FCV Loss psi |
|---------|-----------|---------------------|----------|----------------------|---------------------|--------------|
| 3 | P3 | 0.527 | | 1.1105 | 8.0000 | 1.1689 |
| 6 | P6 | 0.527 | | 0.8329 | 6.0000 | 2.9433 |
| 18 | P18 | 0.527 | | 0.5552 | 4.0000 | 4.3287 |
| 21 | P21 | 0.527 | | 0.5552 | 4.0000 | 4.3630 |
| 24 | P24 | 0.527 | | 0.8329 | 6.0000 | 3.1133 |
| 27 | P27 | 0.527 | | 1.1105 | 8.0000 | 1.4295 |
| 52 | P52 | 0.527 | | 1.1105 | 8.0000 | 1.2300 |
| 55 | P55 | 0.527 | | 0.5552 | 4.0000 | 4.3006 |
| 58 | P58 | 0.527 | | 0.8329 | 6.0000 | 3.0166 |
| 61 | P61 | 0.527 | | 0.5552 | 4.0000 | 4.3509 |
| 64 | P64 | 0.527 | | 0.5552 | 4.0000 | 4.4012 |
| 67 | P67 | 0.527 | | 0.5552 | 4.0000 | 4.4702 |
| 89 | P89 | 0.527 | | 1.1105 | 8.0000 | 1.4049 |
| 92 | P92 | 0.527 | | 0.8329 | 6.0000 | 3.1793 |
| 95 | P95 | 0.527 | | 0.5552 | 4.0000 | 4.5007 |
| 98 | P98 | 0.527 | | 0.5552 | 4.0000 | 4.5350 |
| 101 | P101 | 0.527 | | 0.8329 | 6.0000 | 3.2853 |
| 104 | P104 | 0.527 | | 1.1105 | 8.0000 | 1.6015 |
| 139 | P139 | 0.527 | | 1.1105 | 8.0000 | 2.8017 |
| 145 | P145 | 0.527 | | 0.8329 | 6.0000 | 4.5836 |
| 173 | P173 | 0.527 | | 1.1105 | 8.0000 | 2.5386 |
| 183 | P183 | 0.527 | | 1.1105 | 8.0000 | 2.7201 |
| 201 | P201 | 0.527 | | 1.1105 | 8.0000 | 4.0710 |
| 204 | P204 | 0.527 | | 1.1105 | 8.0000 | 3.9158 |
| 207 | P207 | 0.527 | | 1.1105 | 8.0000 | 3.8187 |
| 225 | P225 | 0.527 | | 0.8329 | 6.0000 | 6.6737 |
| 228 | P228 | 0.527 | | 0.8329 | 6.0000 | 6.6360 |
| 231 | P231 | 0.527 | | 0.8329 | 6.0000 | 6.6223 |
| 323 | P323 | 0.745 | | 0.2776 | 2.0000 | 6.6852 |
| 331 | P331 | 0.824 | | 0.2776 | 2.0000 | 10.7536 |
| 333 | P333 | 0.824 | | 0.2776 | 2.0000 | 10.7233 |
| 335 | P335 | 2.635 | | 0.1388 | 1.0000 | 10.7408 |
| 343 | P343 | 0.995 | | 0.8329 | 6.0000 | 5.2482 |

| Pipe Id | Pipe Name | Inner Diameter inch | FCV Name | FCV Mass Flow lb/sec | FCV Vol Flow US gpm | FCV Loss psi |
|---------|-----------|---------------------|------------|----------------------|---------------------|--------------|
| 353 | P353 | 0.995 | | 1.1105 | 8.0000 | 5.8241 |
| 357 | P357 | 0.995 | | 1.1105 | 8.0000 | 5.8156 |
| 362 | P362 | 0.745 | | 1.1105 | 8.0000 | 4.5913 |
| 367 | P367 | 0.745 | | 0.9023 | 6.5000 | 2.4679 |
| 372 | P372 | 0.745 | | 0.4164 | 3.0000 | 3.2171 |
| 381 | P381 | 0.745 | | 0.9023 | 6.5000 | 2.1107 |
| 382 | P382 | 0.745 | | 0.4164 | 3.0000 | 2.8927 |
| 385 | P385 | 0.824 | | 2.0822 | 15.0000 | 3.3079 |
| 392 | P392 | 0.745 | | 0.0694 | 0.5000 | 3.7836 |
| 397 | P397 | 0.745 | | 0.0694 | 0.5000 | 3.4264 |
| 403 | P403 | 0.745 | | 0.4164 | 3.0000 | 4.8354 |
| 407 | P407 | 0.745 | | 0.9023 | 6.5000 | 3.8038 |
| 415 | P415 | 0.745 | | 0.4164 | 3.0000 | 4.3783 |
| 417 | P417 | 0.745 | | 0.9023 | 6.5000 | 3.3466 |
| 320 | P320 | 0.745 | NOT IN USE | | | |

Pressure Reducing Valves (PRVs)

| Pipe Id | Pipe Name | Inner Diameter inch | PRV Name | PRV Pressure psi.g | PRV Loss psi |
|---------|-----------|---------------------|----------|--------------------|--------------|
|---------|-----------|---------------------|----------|--------------------|--------------|

Back Pressure Valves (BPVs)

| Pipe Id | Pipe Name | Inner Diameter inch | BPV Name | BPV Pressure psi.g | BPV Loss psi |
|---------|-----------|---------------------|----------|--------------------|--------------|
|---------|-----------|---------------------|----------|--------------------|--------------|

Node Data

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|----------------------|----------------------|-------------------|-------------------------|--------------------------|--|---|
| 1 | Join Point | N1 | 35.000 | N/A | N/A | 21.6482 | 36.7914 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 2 | Join Point | N2 | 35.000 | N/A | N/A | 20.7601 | 35.9032 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 3 | Join Point | N3 | 35.000 | N/A | N/A | 10.7715 | 25.9146 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 4 | Join Point | N4 | 35.000 | N/A | N/A | 9.8834 | 25.0265 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 5 | Join Point | N5 | 35.000 | N/A | N/A | 21.6520 | 36.7951 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 6 | Join Point | N6 | 35.000 | N/A | N/A | 21.1325 | 36.2756 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 7 | Join Point | N7 | 35.000 | N/A | N/A | 10.3954 | 25.5385 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 8 | Join Point | N8 | 35.000 | N/A | N/A | 9.8759 | 25.0191 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 9 | Join Point | N9 | 35.000 | N/A | N/A | 21.6626 | 36.8058 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 10 | Join Point | N10 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 11 | Join Point | N11 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 12 | Join Point | N12 | 35.000 | N/A | N/A | 9.8653 | 25.0084 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 13 | Join Point | N13 | 35.000 | N/A | N/A | 21.6733 | 36.8164 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 14 | Join Point | N14 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 15 | Join Point | N15 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 16 | Join Point | N16 | 35.000 | N/A | N/A | 9.8546 | 24.9977 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 17 | Join Point | N17 | 35.000 | N/A | N/A | 21.6840 | 36.8271 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 18 | Join Point | N18 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 19 | Join Point | N19 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 20 | Join Point | N20 | 35.000 | N/A | N/A | 9.8439 | 24.9870 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 21 | Join Point | N21 | 35.000 | N/A | N/A | 21.6947 | 36.8378 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 22 | Join Point | N22 | 35.000 | N/A | N/A | 21.4497 | 36.5928 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 23 | Join Point | N23 | 35.000 | N/A | N/A | 10.0783 | 25.2214 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 24 | Join Point | N24 | 35.000 | N/A | N/A | 9.8332 | 24.9764 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 25 | Join Point | N25 | 35.000 | N/A | N/A | 21.7118 | 36.8550 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 26 | Join Point | N26 | 35.000 | N/A | N/A | 21.4668 | 36.6099 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 27 | Join Point | N27 | 35.000 | N/A | N/A | 10.0611 | 25.2042 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 28 | Join Point | N28 | 35.000 | N/A | N/A | 9.8161 | 24.9592 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 29 | Join Point | N29 | 35.000 | N/A | N/A | 21.7370 | 36.8801 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 30 | Join Point | N30 | 35.000 | N/A | N/A | 21.2175 | 36.3606 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 31 | Join Point | N31 | 35.000 | N/A | N/A | 10.3104 | 25.4535 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 32 | Join Point | N32 | 35.000 | N/A | N/A | 9.7909 | 24.9341 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 33 | Join Point | N33 | 35.000 | N/A | N/A | 21.7767 | 36.9198 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 34 | Join Point | N34 | 35.000 | N/A | N/A | 20.8886 | 36.0317 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 35 | Join Point | N35 | 35.000 | N/A | N/A | 10.6394 | 25.7825 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 36 | Join Point | N36 | 35.000 | N/A | N/A | 9.7512 | 24.8943 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 37 | Join Point | N37 | 35.000 | N/A | N/A | 21.6660 | 36.8091 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 38 | Join Point | N38 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 39 | Join Point | N39 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 40 | Join Point | N40 | 35.000 | N/A | N/A | 9.8401 | 24.9832 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 41 | Join Point | N41 | 35.000 | N/A | N/A | 21.6660 | 36.8091 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 42 | Join Point | N42 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 43 | Join Point | N43 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 44 | Join Point | N44 | 35.000 | N/A | N/A | 9.8401 | 24.9832 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 45 | Join Point | N45 | 35.000 | N/A | N/A | 21.6660 | 36.8091 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 46 | Join Point | N46 | 35.000 | N/A | N/A | 20.7779 | 35.9210 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 47 | Join Point | N47 | 35.000 | N/A | N/A | 10.7282 | 25.8713 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 48 | Join Point | N48 | 35.000 | N/A | N/A | 9.8401 | 24.9832 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 49 | Join Point | N49 | 35.000 | N/A | N/A | 21.6697 | 36.8128 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 50 | Join Point | N50 | 35.000 | N/A | N/A | 21.4247 | 36.5678 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 51 | Join Point | N51 | 35.000 | N/A | N/A | 10.0814 | 25.2245 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 52 | Join Point | N52 | 35.000 | N/A | N/A | 9.8364 | 24.9795 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 53 | Join Point | N53 | 35.000 | N/A | N/A | 21.6777 | 36.8208 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 54 | Join Point | N54 | 35.000 | N/A | N/A | 21.1582 | 36.3014 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 55 | Join Point | N55 | 35.000 | N/A | N/A | 10.3478 | 25.4910 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 56 | Join Point | N56 | 35.000 | N/A | N/A | 9.8284 | 24.9715 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 57 | Join Point | N57 | 35.000 | N/A | N/A | 21.6949 | 36.8380 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 58 | Join Point | N58 | 35.000 | N/A | N/A | 21.4499 | 36.5930 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 59 | Join Point | N59 | 35.000 | N/A | N/A | 10.0562 | 25.1993 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 60 | Join Point | N60 | 35.000 | N/A | N/A | 9.8112 | 24.9543 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 61 | Join Point | N61 | 35.000 | N/A | N/A | 21.7200 | 36.8631 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 62 | Join Point | N62 | 35.000 | N/A | N/A | 21.4750 | 36.6181 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 63 | Join Point | N63 | 35.000 | N/A | N/A | 10.0311 | 25.1742 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 64 | Join Point | N64 | 35.000 | N/A | N/A | 9.7861 | 24.9292 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 65 | Join Point | N65 | 35.000 | N/A | N/A | 21.7545 | 36.8976 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 66 | Join Point | N66 | 35.000 | N/A | N/A | 21.5095 | 36.6526 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 67 | Join Point | N67 | 35.000 | N/A | N/A | 9.9966 | 25.1397 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 68 | Join Point | N68 | 35.000 | N/A | N/A | 9.7516 | 24.8947 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 69 | Join Point | N69 | 35.000 | N/A | N/A | 21.7998 | 36.9430 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 70 | Join Point | N70 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 71 | Join Point | N71 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 72 | Join Point | N72 | 35.000 | N/A | N/A | 9.7062 | 24.8494 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 73 | Join Point | N73 | 35.000 | N/A | N/A | 9.7699 | 24.9130 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 74 | Join Point | N74 | 35.000 | N/A | N/A | 10.6580 | 25.8012 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 75 | Join Point | N75 | 35.000 | N/A | N/A | 20.8826 | 36.0258 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 76 | Join Point | N76 | 35.000 | N/A | N/A | 21.7708 | 36.9139 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 77 | Join Point | N77 | 35.000 | N/A | N/A | 9.7625 | 24.9056 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 78 | Join Point | N78 | 35.000 | N/A | N/A | 10.2819 | 25.4250 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 79 | Join Point | N79 | 35.000 | N/A | N/A | 21.2550 | 36.3982 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 80 | Join Point | N80 | 35.000 | N/A | N/A | 21.7745 | 36.9176 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 81 | Join Point | N81 | 35.000 | N/A | N/A | 9.7518 | 24.8949 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 82 | Join Point | N82 | 35.000 | N/A | N/A | 9.9968 | 25.1399 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 83 | Join Point | N83 | 35.000 | N/A | N/A | 21.5402 | 36.6833 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 84 | Join Point | N84 | 35.000 | N/A | N/A | 21.7852 | 36.9283 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 85 | Join Point | N85 | 35.000 | N/A | N/A | 9.7346 | 24.8777 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 86 | Join Point | N86 | 35.000 | N/A | N/A | 9.9796 | 25.1227 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 87 | Join Point | N87 | 35.000 | N/A | N/A | 21.5573 | 36.7005 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 88 | Join Point | N88 | 35.000 | N/A | N/A | 21.8024 | 36.9455 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 89 | Join Point | N89 | 35.000 | N/A | N/A | 9.7095 | 24.8526 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 90 | Join Point | N90 | 35.000 | N/A | N/A | 10.2290 | 25.3721 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 91 | Join Point | N91 | 35.000 | N/A | N/A | 21.3080 | 36.4511 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 92 | Join Point | N92 | 35.000 | N/A | N/A | 21.8275 | 36.9706 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 93 | Join Point | N93 | 35.000 | N/A | N/A | 9.6697 | 24.8129 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 94 | Join Point | N94 | 35.000 | N/A | N/A | 10.5579 | 25.7010 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 95 | Join Point | N95 | 35.000 | N/A | N/A | 20.9791 | 36.1222 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 96 | Join Point | N96 | 35.000 | N/A | N/A | 21.8672 | 37.0103 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 97 | Join Point | N97 | 35.000 | N/A | N/A | 9.6502 | 24.7934 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 98 | Join Point | N98 | 35.000 | N/A | N/A | 21.8295 | 36.9726 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 99 | Join Point | N99 | 35.000 | N/A | N/A | 21.8072 | 36.9504 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 100 | Join Point | N100 | 35.000 | N/A | N/A | 21.9178 | 37.0609 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 101 | Join Point | N101 | 35.000 | N/A | N/A | 21.8217 | 36.9649 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 102 | Join Point | N102 | 35.000 | N/A | N/A | 21.8422 | 36.9853 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 103 | Join Point | N103 | 35.000 | N/A | N/A | 21.8978 | 37.0409 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 104 | Join Point | N104 | 35.000 | N/A | N/A | 9.6354 | 24.7785 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 105 | Join Point | N105 | 35.000 | N/A | N/A | 9.5688 | 24.7119 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 106 | Join Point | N106 | 35.000 | N/A | N/A | 9.6525 | 24.7957 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 107 | Join Point | N107 | 35.000 | N/A | N/A | 9.6370 | 24.7801 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 108 | Join Point | N108 | 35.000 | N/A | N/A | 9.5711 | 24.7142 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 109 | Join Point | N109 | 35.000 | N/A | N/A | 9.4415 | 24.5846 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 110 | Join Point | N110 | 35.000 | N/A | N/A | 21.9883 | 37.1314 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 111 | Tank | N111 | 35.000 | 0.000 | 0.0000 | 0.0000 | 15.1431 | N/A | N/A | N/A | N/A |
| 112 | Join Point | N112 | 35.000 | N/A | N/A | 9.6377 | 24.7808 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 113 | Join Point | N113 | 35.000 | N/A | N/A | 21.8352 | 36.9784 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 114 | Join Point | N114 | 35.000 | N/A | N/A | 0.0000 | 15.1431 | 13.8812 | 0.0000 | 100.00 | 0.00 |
| 115 | Join Point | N115 | 25.700 | N/A | N/A | 13.3376 | 24.4570 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 116 | Join Point | N116 | 22.500 | N/A | N/A | 14.9712 | 24.7061 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 117 | Join Point | N117 | 22.500 | N/A | N/A | 15.3511 | 25.0859 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 118 | Join Point | N118 | 22.500 | N/A | N/A | 26.9724 | 36.7073 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 119 | Join Point | N119 | 22.500 | N/A | N/A | 27.8606 | 37.5954 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 120 | Join Point | N120 | 22.500 | N/A | N/A | 14.4629 | 24.1978 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 121 | Join Point | N121 | 22.500 | N/A | N/A | 14.4028 | 24.1376 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 122 | Join Point | N122 | 24.200 | N/A | N/A | 13.7354 | 24.2057 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 123 | Join Point | N123 | 25.700 | N/A | N/A | 13.2155 | 24.3349 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 124 | Join Point | N124 | 22.500 | N/A | N/A | 27.3486 | 37.0834 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 125 | Join Point | N125 | 22.500 | N/A | N/A | 27.8680 | 37.6029 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 126 | Join Point | N126 | 22.500 | N/A | N/A | 14.4517 | 24.1866 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 127 | Join Point | N127 | 22.500 | N/A | N/A | 0.0000 | 9.7349 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 128 | Join Point | N128 | 22.500 | N/A | N/A | 0.0000 | 9.7349 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 129 | Join Point | N129 | 22.500 | N/A | N/A | 27.8871 | 37.6220 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 130 | Join Point | N130 | 22.500 | N/A | N/A | 14.4213 | 24.1562 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 131 | Join Point | N131 | 25.700 | N/A | N/A | 26.1396 | 37.2590 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 132 | Join Point | N132 | 25.700 | N/A | N/A | 26.2618 | 37.3811 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 133 | Join Point | N133 | 22.500 | N/A | N/A | 27.9003 | 37.6352 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 134 | Join Point | N134 | 22.500 | N/A | N/A | 27.8926 | 37.6275 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 135 | Join Point | N135 | 22.500 | N/A | N/A | 14.4125 | 24.1473 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 136 | Join Point | N136 | 24.200 | N/A | N/A | 27.0399 | 37.5103 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 137 | Join Point | N137 | 24.200 | N/A | N/A | 26.9773 | 37.4477 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 138 | Join Point | N138 | 24.200 | N/A | N/A | 13.7980 | 24.2683 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 139 | Join Point | N139 | 22.500 | N/A | N/A | 27.8972 | 37.6321 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 140 | Join Point | N140 | 22.500 | N/A | N/A | 14.4032 | 24.1381 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 141 | Join Point | N141 | 22.500 | N/A | N/A | 27.9911 | 37.7260 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 142 | Join Point | N142 | 22.500 | N/A | N/A | 14.2385 | 23.9733 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 143 | Join Point | N143 | 22.500 | N/A | N/A | 28.0819 | 37.8168 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 144 | Join Point | N144 | 12.000 | N/A | N/A | 32.7777 | 37.9696 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 145 | Join Point | N145 | 12.000 | N/A | N/A | 32.7595 | 37.9515 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 146 | Join Point | N146 | 12.000 | N/A | N/A | 32.7479 | 37.9398 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 147 | Join Point | N147 | 12.000 | N/A | N/A | 0.0000 | 5.1919 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 148 | Join Point | N148 | 12.000 | N/A | N/A | 20.0522 | 25.2441 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 149 | Join Point | N149 | 12.000 | N/A | N/A | 31.4105 | 36.6024 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 150 | Join Point | N150 | 12.000 | N/A | N/A | 32.6452 | 37.8371 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 151 | Join Point | N151 | 12.000 | N/A | N/A | 18.8175 | 24.0094 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 152 | Join Point | N152 | 12.000 | N/A | N/A | 0.0000 | 5.1919 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 153 | Join Point | N153 | 12.000 | N/A | N/A | 32.6819 | 37.8738 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 154 | Join Point | N154 | 12.000 | N/A | N/A | 18.7620 | 23.9540 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 155 | Join Point | N155 | 12.000 | N/A | N/A | 32.7172 | 37.9091 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 156 | Join Point | N156 | 12.000 | N/A | N/A | 18.7080 | 23.8999 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 157 | Join Point | N157 | 6.800 | N/A | N/A | 35.2355 | 38.1776 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 158 | Join Point | N158 | 12.000 | N/A | N/A | 32.7341 | 37.9260 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 159 | Join Point | N159 | 12.000 | N/A | N/A | 19.9427 | 25.1346 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 160 | Join Point | N160 | 12.000 | N/A | N/A | 31.4825 | 36.6744 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 161 | Join Point | N161 | 12.000 | N/A | N/A | 18.6195 | 23.8114 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 162 | Join Point | N162 | 12.000 | N/A | N/A | 18.5315 | 23.7234 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 163 | Join Point | N163 | 12.000 | N/A | N/A | 18.5251 | 23.7170 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 164 | Join Point | N164 | 12.000 | N/A | N/A | 18.5151 | 23.7070 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 165 | Join Point | N165 | 22.500 | N/A | N/A | 14.1477 | 23.8826 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 166 | Join Point | N166 | 6.800 | N/A | N/A | 20.5959 | 23.5380 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 167 | Join Point | N167 | 6.800 | N/A | N/A | 35.7832 | 38.7253 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 168 | Join Point | N168 | 12.000 | N/A | N/A | 33.4981 | 38.6901 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 169 | Join Point | N169 | 12.000 | N/A | N/A | 33.4818 | 38.6737 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 170 | Join Point | N170 | 12.000 | N/A | N/A | 33.4625 | 38.6544 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 171 | Join Point | N171 | 12.000 | N/A | N/A | 33.4517 | 38.6436 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 172 | Join Point | N172 | 12.000 | N/A | N/A | 18.0648 | 23.2567 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 173 | Join Point | N173 | 12.000 | N/A | N/A | 19.2995 | 24.4914 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 174 | Join Point | N174 | 12.000 | N/A | N/A | 32.1902 | 37.3821 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 175 | Join Point | N175 | 12.000 | N/A | N/A | 33.4249 | 38.6168 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 176 | Join Point | N176 | 12.000 | N/A | N/A | 18.1612 | 23.3532 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 177 | Join Point | N177 | 12.000 | N/A | N/A | 19.3959 | 24.5879 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 178 | Join Point | N178 | 12.000 | N/A | N/A | 32.1314 | 37.3233 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 179 | Join Point | N179 | 12.000 | N/A | N/A | 33.3661 | 38.5580 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 180 | Join Point | N180 | 12.000 | N/A | N/A | 18.2186 | 23.4105 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 181 | Join Point | N181 | 12.000 | N/A | N/A | 19.4533 | 24.6453 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 182 | Join Point | N182 | 12.000 | N/A | N/A | 32.0917 | 37.2837 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 183 | Join Point | N183 | 12.000 | N/A | N/A | 33.3264 | 38.5184 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 184 | Join Point | N184 | 12.000 | N/A | N/A | 18.0106 | 23.2026 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 185 | Join Point | N185 | 12.000 | N/A | N/A | 17.9574 | 23.1493 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 186 | Join Point | N186 | 12.000 | N/A | N/A | 17.9553 | 23.1473 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 187 | Join Point | N187 | 12.000 | N/A | N/A | 17.9402 | 23.1322 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 188 | Join Point | N188 | 6.800 | N/A | N/A | 20.1345 | 23.0766 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 189 | Join Point | N189 | 6.800 | N/A | N/A | 20.1089 | 23.0510 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 190 | Join Point | N190 | 6.800 | N/A | N/A | 19.5589 | 22.5010 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 191 | Join Point | N191 | 6.800 | N/A | N/A | 35.8322 | 38.7743 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 192 | Join Point | N192 | 6.800 | N/A | N/A | 35.8954 | 38.8375 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 193 | Join Point | N193 | 22.500 | N/A | N/A | 13.4202 | 23.1551 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 194 | Join Point | N194 | 22.500 | N/A | N/A | 13.9397 | 23.6746 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 195 | Join Point | N195 | 22.500 | N/A | N/A | 28.4072 | 38.1421 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 196 | Join Point | N196 | 22.500 | N/A | N/A | 28.9267 | 38.6616 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 197 | Join Point | N197 | 22.500 | N/A | N/A | 13.4433 | 23.1782 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 198 | Join Point | N198 | 22.500 | N/A | N/A | 13.9628 | 23.6976 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 199 | Join Point | N199 | 22.500 | N/A | N/A | 28.3925 | 38.1274 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 200 | Join Point | N200 | 22.500 | N/A | N/A | 28.9120 | 38.6468 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 201 | Join Point | N201 | 22.500 | N/A | N/A | 13.4511 | 23.1860 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 202 | Join Point | N202 | 22.500 | N/A | N/A | 13.9706 | 23.7055 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 203 | Join Point | N203 | 22.500 | N/A | N/A | 28.3867 | 38.1216 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 204 | Join Point | N204 | 22.500 | N/A | N/A | 28.9062 | 38.6411 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 205 | Join Point | N205 | 22.500 | N/A | N/A | 28.9506 | 38.6854 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 206 | Join Point | N206 | 22.500 | N/A | N/A | 28.9482 | 38.6831 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 207 | Join Point | N207 | 22.500 | N/A | N/A | 28.9426 | 38.6774 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 208 | Join Point | N208 | 22.500 | N/A | N/A | 28.9354 | 38.6702 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 209 | Join Point | N209 | 22.500 | N/A | N/A | 13.4184 | 23.1533 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 210 | Join Point | N210 | 22.500 | N/A | N/A | 13.4021 | 23.1369 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 211 | Join Point | N211 | 22.500 | N/A | N/A | 13.4014 | 23.1363 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 212 | Join Point | N212 | 22.500 | N/A | N/A | 13.4008 | 23.1356 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 213 | Join Point | N213 | 6.800 | N/A | N/A | 19.2430 | 22.1851 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 214 | Join Point | N214 | 1.000 | N/A | N/A | 21.3078 | 21.7404 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 215 | Join Point | N215 | 1.000 | N/A | N/A | 20.9425 | 21.3752 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 216 | Join Point | N216 | 1.000 | N/A | N/A | 19.8618 | 20.2944 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 217 | Join Point | N217 | 3.000 | N/A | N/A | 18.4701 | 19.7681 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 218 | Join Point | N218 | 43.500 | N/A | N/A | 0.2744 | 19.0951 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 219 | Join Point | N219 | 6.800 | N/A | N/A | 36.2113 | 39.1534 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 220 | Join Point | N220 | 1.000 | N/A | N/A | 39.1654 | 39.5981 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 221 | Join Point | N221 | 1.000 | N/A | N/A | 39.5306 | 39.9633 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 222 | Join Point | N222 | 1.000 | N/A | N/A | 40.0518 | 40.4844 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 223 | Join Point | N223 | 3.000 | N/A | N/A | 39.5201 | 40.8181 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 224 | Join Point | N224 | 3.000 | N/A | N/A | 41.3876 | 42.6856 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 225 | Join Point | N225 | 43.500 | N/A | N/A | 24.5993 | 43.4201 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 226 | Join Point | N226 | 43.500 | N/A | N/A | 25.2328 | 44.0536 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 227 | Join Point | N227 | 43.500 | N/A | N/A | 25.3710 | 44.1917 | 38.8673 | 0.0000 | 280.00 | 0.00 |
| 228 | Tank | N228 | 43.500 | 0.000 | 0.0000 | 0.0000 | 18.8207 | N/A | N/A | N/A | N/A |
| 229 | Join Point | N229 | 3.000 | N/A | N/A | 39.9983 | 41.2962 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 230 | Join Point | N230 | 3.000 | N/A | N/A | 38.8737 | 40.1717 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 231 | Join Point | N231 | 3.000 | N/A | N/A | 39.9010 | 41.1990 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 232 | Join Point | N232 | 1.000 | N/A | N/A | 40.7155 | 41.1481 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 233 | Join Point | N233 | 0.200 | N/A | N/A | 39.9999 | 40.0864 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 234 | Join Point | N234 | 0.200 | N/A | N/A | 39.9864 | 40.0729 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 235 | Join Point | N235 | 0.200 | N/A | N/A | 39.9690 | 40.0556 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 236 | Join Point | N236 | 0.200 | N/A | N/A | 39.9406 | 40.0271 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 237 | Join Point | N237 | 0.200 | N/A | N/A | 39.8316 | 39.9181 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 238 | Join Point | N238 | 9.200 | N/A | N/A | 35.7865 | 39.7669 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 239 | Join Point | N239 | 0.200 | N/A | N/A | 39.9286 | 40.0151 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 240 | Join Point | N240 | 0.200 | N/A | N/A | 39.8401 | 39.9267 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 241 | Join Point | N241 | 0.200 | N/A | N/A | 39.7852 | 39.8718 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 242 | Join Point | N242 | 0.200 | N/A | N/A | 39.7266 | 39.8132 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 243 | Join Point | N243 | 0.200 | N/A | N/A | 39.6938 | 39.7804 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 244 | Join Point | N244 | 0.200 | N/A | N/A | 39.5718 | 39.6583 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 245 | Join Point | N245 | 8.950 | N/A | N/A | 35.7110 | 39.5833 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 246 | Join Point | N246 | 8.950 | N/A | N/A | 35.6831 | 39.5554 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 247 | Join Point | N247 | 8.950 | N/A | N/A | 35.6551 | 39.5274 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 248 | Join Point | N248 | 18.600 | N/A | N/A | 31.4364 | 39.4839 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 249 | Join Point | N249 | 18.600 | N/A | N/A | 31.3955 | 39.4430 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 250 | Join Point | N250 | 18.600 | N/A | N/A | 31.3943 | 39.4418 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 251 | Join Point | N251 | 18.600 | N/A | N/A | 0.0000 | 8.0475 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 252 | Join Point | N252 | 18.600 | N/A | N/A | 0.0000 | 8.0475 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 253 | Join Point | N253 | 18.600 | N/A | N/A | 15.9202 | 23.9677 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 254 | Join Point | N254 | 18.600 | N/A | N/A | 15.0258 | 23.0733 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 255 | Join Point | N255 | 18.600 | N/A | N/A | 14.9904 | 23.0378 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 256 | Join Point | N256 | 8.950 | N/A | N/A | 19.1219 | 22.9942 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 257 | Join Point | N257 | 8.950 | N/A | N/A | 19.0940 | 22.9663 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 258 | Join Point | N258 | 8.950 | N/A | N/A | 19.0591 | 22.9314 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 259 | Join Point | N259 | 0.200 | N/A | N/A | 22.7741 | 22.8606 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 260 | Join Point | N260 | 0.200 | N/A | N/A | 22.6520 | 22.7386 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 261 | Join Point | N261 | 0.200 | N/A | N/A | 22.6192 | 22.7058 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 262 | Join Point | N262 | 0.200 | N/A | N/A | 22.5606 | 22.6472 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 263 | Join Point | N263 | 0.200 | N/A | N/A | 22.5057 | 22.5923 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 264 | Join Point | N264 | 0.200 | N/A | N/A | 22.4173 | 22.5038 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 265 | Join Point | N265 | 0.200 | N/A | N/A | 22.3609 | 22.4475 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 266 | Join Point | N266 | 3.000 | N/A | N/A | 21.0078 | 22.3058 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 267 | Join Point | N267 | 0.200 | N/A | N/A | 22.3683 | 22.4549 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 268 | Join Point | N268 | 0.200 | N/A | N/A | 22.3857 | 22.4722 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 269 | Join Point | N269 | 0.200 | N/A | N/A | 22.3971 | 22.4836 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 270 | Join Point | N270 | 0.200 | N/A | N/A | 22.5339 | 22.6204 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 271 | Join Point | N271 | 9.200 | N/A | N/A | 18.7911 | 22.7716 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 272 | Join Point | N272 | 1.000 | N/A | N/A | 20.9443 | 21.3770 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 273 | Join Point | N273 | 1.000 | N/A | N/A | 21.3004 | 21.7331 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 274 | Join Point | N274 | 3.000 | N/A | N/A | 20.7013 | 21.9993 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 275 | Join Point | N275 | 9.200 | N/A | N/A | 18.8437 | 22.8242 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 276 | Join Point | N276 | 9.200 | N/A | N/A | 35.7196 | 39.7001 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 277 | Join Point | N277 | 9.200 | N/A | N/A | 33.3858 | 37.3663 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 278 | Join Point | N278 | 9.200 | N/A | N/A | 21.3935 | 25.3739 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 279 | Join Point | N279 | 1.000 | N/A | N/A | 40.6234 | 41.0561 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 280 | Join Point | N280 | 9.200 | N/A | N/A | 35.6860 | 39.6665 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 281 | Join Point | N281 | 1.000 | N/A | N/A | 40.5567 | 40.9894 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 282 | Join Point | N282 | 1.000 | N/A | N/A | 40.2481 | 40.6808 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 283 | Join Point | N283 | 3.000 | N/A | N/A | 39.3058 | 40.6038 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 284 | Join Point | N284 | 9.200 | N/A | N/A | 32.8063 | 36.7868 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 285 | Join Point | N285 | 9.200 | N/A | N/A | 35.6496 | 39.6300 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 286 | Join Point | N286 | 9.200 | N/A | N/A | 35.6375 | 39.6180 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 287 | Join Point | N287 | 9.200 | N/A | N/A | 18.9185 | 22.8990 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 288 | Join Point | N288 | 9.200 | N/A | N/A | 18.9065 | 22.8870 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 289 | Join Point | N289 | 9.200 | N/A | N/A | 20.8139 | 24.7944 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 290 | Join Point | N290 | 9.200 | N/A | N/A | 18.9245 | 22.9049 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 291 | Join Point | N291 | 15.200 | N/A | N/A | 32.8568 | 39.4333 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 292 | Join Point | N292 | 15.200 | N/A | N/A | 32.6220 | 39.1984 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 293 | Join Point | N293 | 15.200 | N/A | N/A | 32.5291 | 39.1055 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 294 | Join Point | N294 | 15.200 | N/A | N/A | 16.7513 | 23.3277 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 295 | Join Point | N295 | 15.200 | N/A | N/A | 16.7815 | 23.3580 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 296 | Join Point | N296 | 15.200 | N/A | N/A | 32.5289 | 39.1053 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 297 | Join Point | N297 | 15.200 | N/A | N/A | 32.5289 | 39.1053 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 298 | Join Point | N298 | 15.200 | N/A | N/A | 16.7881 | 23.3645 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 299 | Join Point | N299 | 15.200 | N/A | N/A | 16.7509 | 23.3273 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 300 | Join Point | N300 | 15.200 | N/A | N/A | 16.5161 | 23.0925 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 301 | Join Point | N301 | 18.600 | N/A | N/A | 31.3939 | 39.4413 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 302 | Join Point | N302 | 18.600 | N/A | N/A | 31.2868 | 39.3343 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 303 | Join Point | N303 | 18.600 | N/A | N/A | 15.9993 | 24.0468 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 304 | Join Point | N304 | 18.600 | N/A | N/A | 15.9207 | 23.9682 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 305 | Join Point | N305 | 18.600 | N/A | N/A | 31.3526 | 39.4001 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 306 | Join Point | N306 | 18.600 | N/A | N/A | 31.3408 | 39.3883 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 307 | Join Point | N307 | 18.600 | N/A | N/A | 31.3380 | 39.3855 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 308 | Join Point | N308 | 18.600 | N/A | N/A | 15.0952 | 23.1427 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 309 | Join Point | N309 | 18.600 | N/A | N/A | 15.0895 | 23.1370 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 310 | Join Point | N310 | 18.600 | N/A | N/A | 15.0728 | 23.1203 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 311 | Join Point | N311 | 18.600 | N/A | N/A | 31.1093 | 39.1568 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 312 | Join Point | N312 | 18.600 | N/A | N/A | 15.2199 | 23.2674 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 313 | Join Point | N313 | 18.600 | N/A | N/A | 31.1065 | 39.1540 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 314 | Join Point | N314 | 1.000 | N/A | N/A | 21.4896 | 21.9223 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 315 | Join Point | N315 | 18.600 | N/A | N/A | 15.2256 | 23.2731 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 316 | Join Point | N316 | 18.600 | N/A | N/A | 31.3373 | 39.3848 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 317 | Join Point | N317 | 18.600 | N/A | N/A | 15.0967 | 23.1442 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 318 | Join Point | N318 | 18.600 | N/A | N/A | 30.4678 | 38.5153 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 319 | Join Point | N319 | 18.600 | N/A | N/A | 15.6165 | 23.6640 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 320 | Join Point | N320 | 12.000 | N/A | N/A | 32.7626 | 37.9545 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 321 | Join Point | N321 | 13.500 | N/A | N/A | 31.9072 | 37.7482 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 322 | Join Point | N322 | 13.500 | N/A | N/A | 31.3166 | 37.1576 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 323 | Join Point | N323 | 13.500 | N/A | N/A | 18.5534 | 24.3944 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 324 | Join Point | N324 | 13.500 | N/A | N/A | 18.0782 | 23.9192 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 325 | Join Point | N325 | 12.000 | N/A | N/A | 18.5209 | 23.7128 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 326 | Join Point | N326 | 13.500 | N/A | N/A | 31.6179 | 37.4589 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 327 | Join Point | N327 | 13.500 | N/A | N/A | 18.3301 | 24.1710 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 328 | Join Point | N328 | 13.500 | N/A | N/A | 31.9132 | 37.7541 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 329 | Join Point | N329 | 13.500 | N/A | N/A | 31.3226 | 37.1635 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 330 | Join Point | N330 | 13.500 | N/A | N/A | 31.6566 | 37.4975 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 331 | Join Point | N331 | 12.000 | N/A | N/A | 32.6105 | 37.8025 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 332 | Join Point | N332 | 13.500 | N/A | N/A | 18.6932 | 24.5341 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 333 | Join Point | N333 | 13.500 | N/A | N/A | 18.4413 | 24.2823 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 334 | Join Point | N334 | 13.500 | N/A | N/A | 18.9165 | 24.7575 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 335 | Join Point | N335 | 12.000 | N/A | N/A | 18.8199 | 24.0118 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 336 | Join Point | N336 | 18.600 | N/A | N/A | 29.9164 | 37.9639 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 340 | Join Point | N340 | 13.500 | N/A | N/A | 31.8828 | 37.7237 | 0.0000 | 0.0000 | 0.00 | 0.00 |

| Node Id | Node Type | Node | Elevation ft | Liquid Level ft | Surface Press. psi.g | Press. at Node psi.g | HGL at Node psi.g | Demand In (Mass) lb/sec | Demand Out (Mass) lb/sec | Demand In (Vol) @ Fluid Zone Density Downstream US gpm | Demand Out (Vol) @ Fluid Zone Density Downstream US gpm |
|---------|------------|------|--------------|-----------------|-------------------------|-------------------------|----------------------|----------------------------|-----------------------------|--|---|
| 341 | Join Point | N341 | 13.500 | N/A | N/A | 18.0898 | 23.9307 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 342 | Join Point | N342 | 13.500 | N/A | N/A | 31.8788 | 37.7197 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 343 | Join Point | N343 | 13.500 | N/A | N/A | 18.0931 | 23.9341 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 344 | Join Point | N344 | 13.500 | N/A | N/A | 31.8887 | 37.7296 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 345 | Join Point | N345 | 13.500 | N/A | N/A | 18.4529 | 24.2938 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 346 | Join Point | N346 | 13.500 | N/A | N/A | 31.8847 | 37.7256 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 347 | Join Point | N347 | 13.500 | N/A | N/A | 18.4562 | 24.2972 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 348 | Join Point | N348 | 12.000 | N/A | N/A | 33.4868 | 38.6787 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 349 | Join Point | N349 | 12.000 | N/A | N/A | 17.9484 | 23.1404 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 350 | Join Point | N350 | 13.500 | N/A | N/A | 32.6511 | 38.4920 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 351 | Join Point | N351 | 13.500 | N/A | N/A | 32.5095 | 38.3504 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 352 | Join Point | N352 | 13.500 | N/A | N/A | 17.6032 | 23.4441 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 353 | Join Point | N353 | 13.500 | N/A | N/A | 17.4862 | 23.3271 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 354 | Join Point | N354 | 13.500 | N/A | N/A | 32.0605 | 37.9014 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 355 | Join Point | N355 | 13.500 | N/A | N/A | 17.9614 | 23.8023 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 356 | Join Point | N356 | 12.000 | N/A | N/A | 33.2925 | 38.4844 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 357 | Join Point | N357 | 13.500 | N/A | N/A | 32.5281 | 38.3690 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 358 | Join Point | N358 | 13.500 | N/A | N/A | 18.2955 | 24.1364 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 359 | Join Point | N359 | 13.500 | N/A | N/A | 17.8203 | 23.6612 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 360 | Join Point | N360 | 13.500 | N/A | N/A | 32.3864 | 38.2274 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 361 | Join Point | N361 | 13.500 | N/A | N/A | 17.9373 | 23.7783 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 362 | Join Point | N362 | 13.500 | N/A | N/A | 31.9374 | 37.7784 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 363 | Join Point | N363 | 12.000 | N/A | N/A | 18.2247 | 23.4166 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 364 | Join Point | N364 | 18.600 | N/A | N/A | 31.3502 | 39.3977 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 365 | Join Point | N365 | 18.600 | N/A | N/A | 31.3401 | 39.3875 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 366 | Join Point | N366 | 18.600 | N/A | N/A | 15.0891 | 23.1366 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 367 | Join Point | N367 | 18.600 | N/A | N/A | 15.0771 | 23.1246 | 0.0000 | 0.0000 | 0.00 | 0.00 |
| 369 | Join Point | N369 | 18.600 | N/A | N/A | 16.1020 | 24.1495 | 0.0000 | 0.0000 | 0.00 | 0.00 |

Energy Data

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| | | Horsepower | Horsepower | Horsepower | Horsepower | Horsepower | Horsepower | Horsepower | Horsepower | Horsepower |
| 1 | P1 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 2 | P2 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 3 | P3 | 0.004254 | 0.007038 | 0.029867 | 0.005455 | N/A | 0.046613 | 0.000000 | 0.000000 | 0.046613 |
| 4 | P4 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 5 | P5 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 6 | P6 | 0.001909 | 0.002969 | 0.022400 | 0.010302 | N/A | 0.037580 | 0.000000 | 0.000000 | 0.037580 |
| 16 | P16 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 17 | P17 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 18 | P18 | 0.000620 | 0.000880 | 0.014933 | 0.010100 | N/A | 0.026533 | 0.000000 | 0.000000 | 0.026533 |
| 19 | P19 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 20 | P20 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 21 | P21 | 0.000620 | 0.000880 | 0.014933 | 0.010180 | N/A | 0.026613 | 0.000000 | 0.000000 | 0.026613 |
| 22 | P22 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 23 | P23 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 24 | P24 | 0.001909 | 0.002969 | 0.022400 | 0.010897 | N/A | 0.038175 | 0.000000 | 0.000000 | 0.038175 |
| 25 | P25 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 26 | P26 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 27 | P27 | 0.004254 | 0.007038 | 0.029867 | 0.006671 | N/A | 0.047830 | 0.000000 | 0.000000 | 0.047830 |
| 28 | P28 | 0.000278 | 0.000371 | 0.000000 | 0.000000 | N/A | 0.000649 | 0.000000 | 0.000000 | 0.000649 |
| 29 | P29 | 0.000143 | 0.000180 | 0.000000 | 0.000000 | N/A | 0.000322 | 0.000000 | 0.000000 | 0.000322 |
| 30 | P30 | 0.000082 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000180 | 0.000000 | 0.000000 | 0.000180 |
| 31 | P31 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 32 | P32 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 33 | P33 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 34 | P34 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 35 | P35 | 0.000009 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000017 | 0.000000 | 0.000000 | 0.000017 |
| 36 | P36 | 0.000009 | 0.000026 | 0.000000 | 0.000000 | N/A | 0.000035 | 0.000000 | 0.000000 | 0.000035 |
| 37 | P37 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 38 | P38 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 39 | P39 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 40 | P40 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 41 | P41 | 0.000082 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000180 | 0.000000 | 0.000000 | 0.000180 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 42 | P42 | 0.000143 | 0.000180 | 0.000000 | 0.000000 | N/A | 0.000322 | 0.000000 | 0.000000 | 0.000322 |
| 43 | P43 | 0.000278 | 0.000371 | 0.000000 | 0.000000 | N/A | 0.000649 | 0.000000 | 0.000000 | 0.000649 |
| 50 | P50 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 51 | P51 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 52 | P52 | 0.004254 | 0.007038 | 0.029867 | 0.005740 | N/A | 0.046898 | 0.000000 | 0.000000 | 0.046898 |
| 53 | P53 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 54 | P54 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 55 | P55 | 0.000620 | 0.000880 | 0.014933 | 0.010035 | N/A | 0.026468 | 0.000000 | 0.000000 | 0.026468 |
| 56 | P56 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 57 | P57 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 58 | P58 | 0.001909 | 0.002969 | 0.022400 | 0.010558 | N/A | 0.037836 | 0.000000 | 0.000000 | 0.037836 |
| 59 | P59 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 60 | P60 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 61 | P61 | 0.000620 | 0.000880 | 0.014933 | 0.010152 | N/A | 0.026585 | 0.000000 | 0.000000 | 0.026585 |
| 62 | P62 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 63 | P63 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 64 | P64 | 0.000620 | 0.000880 | 0.014933 | 0.010269 | N/A | 0.026702 | 0.000000 | 0.000000 | 0.026702 |
| 65 | P65 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 66 | P66 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 67 | P67 | 0.000620 | 0.000880 | 0.014933 | 0.010430 | N/A | 0.026863 | 0.000000 | 0.000000 | 0.026863 |
| 71 | P71 | 0.000337 | 0.000456 | 0.000000 | 0.000000 | N/A | 0.000793 | 0.000000 | 0.000000 | 0.000793 |
| 72 | P72 | 0.000227 | 0.000297 | 0.000000 | 0.000000 | N/A | 0.000523 | 0.000000 | 0.000000 | 0.000523 |
| 73 | P73 | 0.000143 | 0.000180 | 0.000000 | 0.000000 | N/A | 0.000322 | 0.000000 | 0.000000 | 0.000322 |
| 74 | P74 | 0.000082 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000180 | 0.000000 | 0.000000 | 0.000180 |
| 75 | P75 | 0.000027 | 0.000029 | 0.000000 | 0.000000 | N/A | 0.000056 | 0.000000 | 0.000000 | 0.000056 |
| 76 | P76 | 0.000009 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000017 | 0.000000 | 0.000000 | 0.000017 |
| 77 | P77 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 78 | P78 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 79 | P79 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 80 | P80 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 81 | P81 | 0.000009 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000017 | 0.000000 | 0.000000 | 0.000017 |
| 82 | P82 | 0.000027 | 0.000029 | 0.000000 | 0.000000 | N/A | 0.000056 | 0.000000 | 0.000000 | 0.000056 |
| 83 | P83 | 0.000082 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000180 | 0.000000 | 0.000000 | 0.000180 |
| 84 | P84 | 0.000143 | 0.000180 | 0.000000 | 0.000000 | N/A | 0.000322 | 0.000000 | 0.000000 | 0.000322 |
| 85 | P85 | 0.000227 | 0.000297 | 0.000000 | 0.000000 | N/A | 0.000523 | 0.000000 | 0.000000 | 0.000523 |
| 86 | P86 | 0.000337 | 0.000456 | 0.000000 | 0.000000 | N/A | 0.000793 | 0.000000 | 0.000000 | 0.000793 |
| 87 | P87 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 88 | P88 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 89 | P89 | 0.004254 | 0.007038 | 0.029867 | 0.006556 | N/A | 0.047715 | 0.000000 | 0.000000 | 0.047715 |
| 90 | P90 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 91 | P91 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 92 | P92 | 0.001909 | 0.002969 | 0.022400 | 0.011128 | N/A | 0.038406 | 0.000000 | 0.000000 | 0.038406 |
| 93 | P93 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 94 | P94 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 95 | P95 | 0.000620 | 0.000880 | 0.014933 | 0.010502 | N/A | 0.026935 | 0.000000 | 0.000000 | 0.026935 |
| 96 | P96 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 97 | P97 | 0.000357 | 0.000215 | 0.000000 | 0.000000 | N/A | 0.000572 | 0.000000 | 0.000000 | 0.000572 |
| 98 | P98 | 0.000620 | 0.000880 | 0.014933 | 0.010582 | N/A | 0.027015 | 0.000000 | 0.000000 | 0.027015 |
| 99 | P99 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 100 | P100 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 101 | P101 | 0.001909 | 0.002969 | 0.022400 | 0.011498 | N/A | 0.038777 | 0.000000 | 0.000000 | 0.038777 |
| 102 | P102 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 103 | P103 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 104 | P104 | 0.004254 | 0.007038 | 0.029867 | 0.007474 | N/A | 0.048632 | 0.000000 | 0.000000 | 0.048632 |
| 105 | P105 | 0.000278 | 0.000371 | 0.000000 | 0.000000 | N/A | 0.000649 | 0.000000 | 0.000000 | 0.000649 |
| 106 | P106 | 0.000143 | 0.000180 | 0.000000 | 0.000000 | N/A | 0.000322 | 0.000000 | 0.000000 | 0.000322 |
| 107 | P107 | 0.000082 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000180 | 0.000000 | 0.000000 | 0.000180 |
| 108 | P108 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 109 | P109 | 0.000009 | 0.000026 | 0.000000 | 0.000000 | N/A | 0.000035 | 0.000000 | 0.000000 | 0.000035 |
| 110 | P110 | 0.000009 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000017 | 0.000000 | 0.000000 | 0.000017 |
| 111 | P111 | 0.000041 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000087 | 0.000000 | 0.000000 | 0.000087 |
| 112 | P112 | 0.000082 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000180 | 0.000000 | 0.000000 | 0.000180 |
| 113 | P113 | 0.000143 | 0.000180 | 0.000000 | 0.000000 | N/A | 0.000322 | 0.000000 | 0.000000 | 0.000322 |
| 114 | P114 | 0.000278 | 0.000371 | 0.000000 | 0.000000 | N/A | 0.000649 | 0.000000 | 0.000000 | 0.000649 |
| 115 | P115 | 0.000029 | 0.000329 | 0.000000 | 0.000000 | N/A | 0.000357 | 0.000000 | 0.000000 | 0.000357 |
| 116 | P116 | 0.000048 | 0.000419 | 0.000000 | 0.000000 | N/A | 0.000467 | 0.000000 | 0.000000 | 0.000467 |
| 117 | P117 | 0.000517 | 0.000124 | 0.000000 | 0.000000 | N/A | 0.000641 | 0.000000 | 0.000000 | 0.000641 |
| 118 | P118 | 0.000048 | 0.000373 | 0.000000 | 0.000000 | N/A | 0.000421 | 0.000000 | 0.000000 | 0.000421 |
| 119 | P119 | 0.000311 | 0.000072 | 0.000000 | 0.000000 | N/A | 0.000383 | 0.000000 | 0.000000 | 0.000383 |
| 120 | P120 | 0.000517 | 0.000124 | 0.000000 | 0.000000 | N/A | 0.000641 | 0.000000 | 0.000000 | 0.000641 |
| 121 | P121 | 0.001113 | 0.001799 | 0.000000 | 0.000000 | N/A | 0.002913 | 0.000000 | 0.000000 | 0.002913 |
| 122 | P122 | 0.000048 | 0.000097 | 0.000000 | 0.000000 | N/A | 0.000146 | 0.000000 | 0.000000 | 0.000146 |
| 123 | P123 | 0.000121 | 0.000143 | 0.000000 | 0.000000 | N/A | 0.000264 | 0.000000 | 0.000000 | 0.000264 |
| 124 | P124 | 0.000765 | 0.001799 | 0.000000 | 0.000000 | N/A | 0.002564 | 0.000000 | 0.000000 | 0.002564 |
| 125 | P125 | 0.000517 | 0.001555 | 0.000000 | 0.000000 | N/A | 0.002072 | 0.000000 | 0.000000 | 0.002072 |
| 126 | P126 | 0.000311 | 0.000900 | 0.000000 | 0.000000 | N/A | 0.001211 | 0.000000 | 0.000000 | 0.001211 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 127 | P127 | 0.000517 | 0.001555 | 0.000000 | 0.000000 | N/A | 0.002072 | 0.000000 | 0.000000 | 0.002072 |
| 128 | P128 | 0.000048 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000048 | 0.000000 | 0.000000 | 0.000048 |
| 129 | P129 | 0.000029 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000029 | 0.000000 | 0.000000 | 0.000029 |
| 130 | P130 | 0.000048 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000048 | 0.000000 | 0.000000 | 0.000048 |
| 131 | P131 | 0.000932 | 0.006641 | 0.000000 | 0.000000 | N/A | 0.007573 | 0.000000 | 0.000000 | 0.007573 |
| 132 | P132 | 0.000932 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.004191 | 0.000000 | 0.000000 | 0.004191 |
| 134 | P134 | 0.000048 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000048 | 0.000000 | 0.000000 | 0.000048 |
| 135 | P135 | 0.000121 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000121 | 0.000000 | 0.000000 | 0.000121 |
| 137 | P137 | 0.004334 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.007593 | 0.000000 | -0.239413 | -0.231820 |
| 138 | P138 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 139 | P139 | 0.004254 | 0.007038 | 0.029867 | 0.013075 | N/A | 0.054233 | 0.000000 | 0.000000 | 0.054233 |
| 140 | P140 | 0.002426 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.004145 | 0.000000 | 0.000000 | 0.004145 |
| 141 | P141 | 0.000792 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.004051 | 0.000000 | -0.043764 | -0.039712 |
| 142 | P142 | 0.000466 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.003725 | 0.000000 | 0.000000 | 0.003725 |
| 143 | P143 | 0.004008 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.007267 | 0.000000 | 0.000000 | 0.007267 |
| 144 | P144 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 145 | P145 | 0.001909 | 0.002969 | 0.022400 | 0.016043 | N/A | 0.043321 | 0.000000 | 0.000000 | 0.043321 |
| 146 | P146 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 150 | P150 | 0.004334 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.007593 | 0.000000 | 0.239413 | 0.247006 |
| 151 | P151 | 0.004008 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.007267 | 0.000000 | 0.000000 | 0.007267 |
| 152 | P152 | 0.000466 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.003725 | 0.000000 | 0.000000 | 0.003725 |
| 153 | P153 | 0.000003 | 0.000022 | 0.000000 | 0.000000 | N/A | 0.000025 | 0.000000 | 0.000000 | 0.000025 |
| 154 | P154 | 0.000038 | 0.000007 | 0.000000 | 0.000000 | N/A | 0.000045 | 0.000000 | 0.000000 | 0.000045 |
| 155 | P155 | 0.000109 | 0.000046 | 0.000000 | 0.000000 | N/A | 0.000156 | 0.000000 | 0.000000 | 0.000156 |
| 156 | P156 | 0.000026 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000035 | 0.000000 | 0.000000 | 0.000035 |
| 157 | P157 | 0.000026 | 0.000026 | 0.000000 | 0.000000 | N/A | 0.000052 | 0.000000 | 0.000000 | 0.000052 |
| 158 | P158 | 0.000109 | 0.000139 | 0.000000 | 0.000000 | N/A | 0.000248 | 0.000000 | 0.000000 | 0.000248 |
| 159 | P159 | 0.000019 | 0.000054 | 0.000000 | 0.000000 | N/A | 0.000073 | 0.000000 | 0.000000 | 0.000073 |
| 160 | P160 | 0.000038 | 0.000038 | 0.000000 | 0.000000 | N/A | 0.000075 | 0.000000 | 0.000000 | 0.000075 |
| 161 | P161 | 0.000792 | 0.006641 | 0.000000 | 0.000000 | N/A | 0.007434 | 0.000000 | 0.043764 | 0.051197 |
| 162 | P162 | 0.000699 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.003958 | 0.000000 | 0.038615 | 0.042573 |
| 163 | P163 | 0.000699 | 0.003259 | 0.000000 | 0.000000 | N/A | 0.003958 | 0.000000 | -0.038615 | -0.034657 |
| 164 | P164 | 0.000038 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000038 | 0.000000 | 0.000000 | 0.000038 |
| 165 | P165 | 0.000003 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000003 | 0.000000 | 0.000000 | 0.000003 |
| 166 | P166 | 0.001349 | 0.004794 | 0.000000 | 0.000000 | N/A | 0.006143 | 0.000000 | 0.000000 | 0.006143 |
| 167 | P167 | 0.001349 | 0.009769 | 0.000000 | 0.000000 | N/A | 0.011118 | 0.000000 | 0.000000 | 0.011118 |
| 168 | P168 | 0.001349 | 0.004794 | 0.000000 | 0.000000 | N/A | 0.006143 | 0.000000 | 0.000000 | 0.006143 |
| 169 | P169 | 0.007084 | 0.003256 | 0.000000 | 0.000000 | N/A | 0.010340 | 0.000000 | 0.307405 | 0.317745 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 170 | P170 | 0.000024 | 0.000292 | 0.000000 | 0.000000 | N/A | 0.000316 | 0.000000 | 0.000000 | 0.000316 |
| 171 | P171 | 0.000019 | 0.000158 | 0.000000 | 0.000000 | N/A | 0.000177 | 0.000000 | 0.000000 | 0.000177 |
| 172 | P172 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 173 | P173 | 0.004254 | 0.007038 | 0.029867 | 0.011847 | N/A | 0.053005 | 0.000000 | 0.000000 | 0.053005 |
| 174 | P174 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 178 | P178 | 0.000272 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000370 | 0.000000 | 0.000000 | 0.000370 |
| 179 | P179 | 0.000287 | 0.000098 | 0.000000 | 0.000000 | N/A | 0.000385 | 0.000000 | 0.000000 | 0.000385 |
| 180 | P180 | 0.000287 | 0.000295 | 0.000000 | 0.000000 | N/A | 0.000582 | 0.000000 | 0.000000 | 0.000582 |
| 181 | P181 | 0.000272 | 0.000295 | 0.000000 | 0.000000 | N/A | 0.000567 | 0.000000 | 0.000000 | 0.000567 |
| 182 | P182 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 183 | P183 | 0.004254 | 0.007038 | 0.029867 | 0.012694 | N/A | 0.053852 | 0.000000 | 0.000000 | 0.053852 |
| 184 | P184 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 185 | P185 | 0.000209 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000209 | 0.000000 | 0.000000 | 0.000209 |
| 186 | P186 | 0.000209 | 0.000047 | 0.000000 | 0.000000 | N/A | 0.000256 | 0.000000 | 0.000000 | 0.000256 |
| 187 | P187 | 0.007658 | 0.010786 | 0.000000 | 0.000000 | N/A | 0.018444 | 0.000000 | 0.199485 | 0.217929 |
| 188 | P188 | 0.001046 | 0.000297 | 0.000000 | 0.000000 | N/A | 0.001343 | 0.000000 | 0.000000 | 0.001343 |
| 189 | P189 | 0.001046 | 0.000289 | 0.000000 | 0.000000 | N/A | 0.001335 | 0.000000 | 0.000000 | 0.001335 |
| 190 | P190 | 0.000097 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000097 | 0.000000 | 0.000000 | 0.000097 |
| 191 | P191 | 0.000010 | 0.000054 | 0.000000 | 0.000000 | N/A | 0.000064 | 0.000000 | 0.000000 | 0.000064 |
| 192 | P192 | 0.007084 | 0.004794 | 0.000000 | 0.000000 | N/A | 0.011878 | 0.000000 | -0.307405 | -0.295528 |
| 193 | P193 | 0.001349 | 0.004794 | 0.000000 | 0.000000 | N/A | 0.006143 | 0.000000 | 0.000000 | 0.006143 |
| 194 | P194 | 0.007658 | 0.007326 | 0.000000 | 0.000000 | N/A | 0.014985 | 0.000000 | -0.199485 | -0.184501 |
| 195 | P195 | 0.000322 | 0.001421 | 0.000000 | 0.000000 | N/A | 0.001742 | 0.000000 | 0.000000 | 0.001742 |
| 196 | P196 | 0.000557 | 0.000697 | 0.000000 | 0.000000 | N/A | 0.001255 | 0.000000 | 0.080057 | 0.081311 |
| 197 | P197 | 0.000040 | 0.000244 | 0.000000 | 0.000000 | N/A | 0.000284 | 0.000000 | 0.000000 | 0.000284 |
| 198 | P198 | 0.000039 | 0.000338 | 0.000000 | 0.000000 | N/A | 0.000377 | 0.000000 | 0.000000 | 0.000377 |
| 199 | P199 | 0.000212 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000212 | 0.000000 | 0.000000 | 0.000212 |
| 200 | P200 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 201 | P201 | 0.004254 | 0.007038 | 0.029867 | 0.018998 | N/A | 0.060157 | 0.000000 | 0.000000 | 0.060157 |
| 202 | P202 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 203 | P203 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 204 | P204 | 0.004254 | 0.007038 | 0.029867 | 0.018274 | N/A | 0.059432 | 0.000000 | 0.000000 | 0.059432 |
| 205 | P205 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 206 | P206 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 207 | P207 | 0.004254 | 0.007038 | 0.029867 | 0.017821 | N/A | 0.058979 | 0.000000 | 0.000000 | 0.058979 |
| 208 | P208 | 0.004043 | 0.001719 | 0.000000 | 0.000000 | N/A | 0.005762 | 0.000000 | 0.000000 | 0.005762 |
| 209 | P209 | 0.000423 | 0.000100 | 0.000000 | 0.000000 | N/A | 0.000523 | 0.000000 | 0.000000 | 0.000523 |
| 210 | P210 | 0.000595 | 0.000280 | 0.000000 | 0.000000 | N/A | 0.000875 | 0.000000 | 0.000000 | 0.000875 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 211 | P211 | 0.000314 | 0.000091 | 0.000000 | 0.000000 | N/A | 0.000405 | 0.000000 | 0.000000 | 0.000405 |
| 212 | P212 | 0.000314 | 0.000272 | 0.000000 | 0.000000 | N/A | 0.000586 | 0.000000 | 0.000000 | 0.000586 |
| 213 | P213 | 0.000595 | 0.000840 | 0.000000 | 0.000000 | N/A | 0.001435 | 0.000000 | 0.000000 | 0.001435 |
| 214 | P214 | 0.000423 | 0.000635 | 0.000000 | 0.000000 | N/A | 0.001058 | 0.000000 | 0.000000 | 0.001058 |
| 215 | P215 | 0.000423 | 0.000618 | 0.000000 | 0.000000 | N/A | 0.001041 | 0.000000 | 0.000000 | 0.001041 |
| 216 | P216 | 0.000039 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000039 | 0.000000 | 0.000000 | 0.000039 |
| 217 | P217 | 0.000020 | 0.000115 | 0.000000 | 0.000000 | N/A | 0.000135 | 0.000000 | 0.000000 | 0.000135 |
| 218 | P218 | 0.000557 | 0.001421 | 0.000000 | 0.000000 | N/A | 0.001978 | 0.000000 | -0.080057 | -0.078079 |
| 219 | P219 | 0.000214 | 0.000697 | 0.000000 | 0.000000 | N/A | 0.000912 | 0.000000 | 0.000000 | 0.000912 |
| 220 | P220 | 0.007851 | 0.060478 | 0.000000 | 0.000000 | N/A | 0.068329 | 0.000000 | 0.000000 | 0.068329 |
| 221 | P221 | 0.032401 | 0.010786 | 0.000000 | 0.000000 | N/A | 0.043187 | 0.000000 | 0.000000 | 0.043187 |
| 222 | P222 | 0.030929 | 0.021978 | 0.000000 | 0.000000 | N/A | 0.052907 | 0.000000 | 0.000000 | 0.052907 |
| 223 | P223 | 0.007851 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.007851 | 0.000000 | 0.000000 | 0.007851 |
| 224 | P224 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 225 | P225 | 0.001909 | 0.002969 | 0.022400 | 0.023358 | N/A | 0.050636 | 0.000000 | 0.000000 | 0.050636 |
| 226 | P226 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 227 | P227 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 228 | P228 | 0.001909 | 0.002969 | 0.022400 | 0.023226 | N/A | 0.050504 | 0.000000 | 0.000000 | 0.050504 |
| 229 | P229 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 230 | P230 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 231 | P231 | 0.001909 | 0.002969 | 0.022400 | 0.023178 | N/A | 0.050456 | 0.000000 | 0.000000 | 0.050456 |
| 232 | P232 | 0.001093 | 0.000725 | 0.000000 | 0.000000 | N/A | 0.001818 | 0.000000 | 0.000000 | 0.001818 |
| 233 | P233 | 0.000074 | 0.000029 | 0.000000 | 0.000000 | N/A | 0.000103 | 0.000000 | 0.000000 | 0.000103 |
| 234 | P234 | 0.000017 | 0.000004 | 0.000000 | 0.000000 | N/A | 0.000020 | 0.000000 | 0.000000 | 0.000020 |
| 235 | P235 | 0.000017 | 0.000011 | 0.000000 | 0.000000 | N/A | 0.000027 | 0.000000 | 0.000000 | 0.000027 |
| 236 | P236 | 0.000074 | 0.000088 | 0.000000 | 0.000000 | N/A | 0.000161 | 0.000000 | 0.000000 | 0.000161 |
| 237 | P237 | 0.000036 | 0.000012 | 0.000000 | 0.000000 | N/A | 0.000049 | 0.000000 | 0.047701 | 0.047749 |
| 238 | P238 | 0.000007 | 0.000018 | 0.000000 | 0.000000 | N/A | 0.000025 | 0.000000 | 0.000000 | 0.000025 |
| 239 | P239 | 0.000007 | 0.000052 | 0.000000 | 0.000000 | N/A | 0.000059 | 0.000000 | 0.000000 | 0.000059 |
| 240 | P240 | 0.000075 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000075 | 0.000000 | 0.000000 | 0.000075 |
| 241 | P241 | 0.000075 | 0.000016 | 0.000000 | 0.000000 | N/A | 0.000091 | 0.000000 | 0.000000 | 0.000091 |
| 242 | P242 | 0.000007 | 0.000012 | 0.000000 | 0.000000 | N/A | 0.000019 | 0.000000 | 0.000000 | 0.000019 |
| 243 | P243 | 0.000075 | 0.000096 | 0.000000 | 0.000000 | N/A | 0.000171 | 0.000000 | 0.000000 | 0.000171 |
| 244 | P244 | 0.000007 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000007 | 0.000000 | 0.000000 | 0.000007 |
| 245 | P245 | 0.000007 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000007 | 0.000000 | 0.000000 | 0.000007 |
| 246 | P246 | 0.000036 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000036 | 0.000000 | -0.047701 | -0.047664 |
| 247 | P247 | 0.039255 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.039255 | 0.000000 | 0.000000 | 0.039255 |
| 248 | P248 | 0.022768 | 0.032479 | 0.000000 | 0.000000 | N/A | 0.055247 | 0.000000 | -0.311797 | -0.256550 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 249 | P249 | 0.015702 | 0.029679 | 0.000000 | 0.000000 | N/A | 0.045381 | 0.000000 | 0.000000 | 0.045381 |
| 250 | P250 | 0.109102 | 0.067420 | 0.000000 | 0.000000 | N/A | 0.176521 | 0.000000 | 0.000000 | 0.176521 |
| 251 | P251 | 0.026184 | 0.059787 | 0.000000 | 0.000000 | N/A | 0.085972 | 0.000000 | 0.141336 | 0.227307 |
| 252 | P252 | 0.098145 | 0.011779 | 0.000000 | 0.000000 | N/A | 0.109924 | 0.000000 | 2.862049 | 2.971973 |
| 253 | P253 | 0.039255 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.039255 | 0.000000 | 0.000000 | 0.039255 |
| 254 | P254 | 0.022768 | 0.032479 | 0.000000 | 0.000000 | N/A | 0.055247 | 0.000000 | 0.311797 | 0.367044 |
| 255 | P255 | 0.015702 | 0.029679 | 0.000000 | 0.000000 | N/A | 0.045381 | 0.000000 | 0.000000 | 0.045381 |
| 256 | P256 | 0.049069 | 0.015680 | 0.000000 | 0.000000 | N/A | 0.064749 | 0.000000 | 0.000000 | 0.064749 |
| 257 | P257 | 0.011777 | 0.029679 | 0.000000 | 0.000000 | N/A | 0.041456 | 0.000000 | -0.107516 | -0.066060 |
| 258 | P258 | 0.226932 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.226932 | 0.000000 | 0.000000 | 0.226932 |
| 259 | P259 | 0.098145 | 0.021813 | 0.000000 | 0.000000 | N/A | 0.119958 | 0.000000 | -2.862049 | -2.742091 |
| 260 | P260 | 0.081224 | 0.022249 | 0.000000 | 0.000000 | N/A | 0.103473 | 0.000000 | 0.000000 | 0.103473 |
| 261 | P261 | 0.022562 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.022562 | 0.000000 | 0.000000 | 0.022562 |
| 262 | P262 | 0.022562 | 0.022249 | 0.000000 | 0.000000 | N/A | 0.044811 | 0.000000 | 0.000000 | 0.044811 |
| 263 | P263 | 0.000140 | 0.003660 | 0.000000 | 0.000000 | N/A | 0.003800 | 0.000000 | 0.000000 | 0.003800 |
| 264 | P264 | 0.039255 | 0.020159 | 0.000000 | 0.000000 | N/A | 0.059415 | 0.000000 | 0.000000 | 0.059415 |
| 265 | P265 | 0.000805 | 0.001184 | 0.000000 | 0.000000 | N/A | 0.001989 | 0.000000 | -0.033820 | -0.031831 |
| 266 | P266 | 0.002414 | 0.001184 | 0.000000 | 0.000000 | N/A | 0.003598 | 0.000000 | 0.000000 | 0.003598 |
| 267 | P267 | 0.001126 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.003331 | 0.000000 | -0.047347 | -0.044016 |
| 268 | P268 | 0.000017 | 0.000156 | 0.000000 | 0.000000 | N/A | 0.000173 | 0.000000 | 0.000000 | 0.000173 |
| 269 | P269 | 0.000145 | 0.000078 | 0.000000 | 0.000000 | N/A | 0.000223 | 0.000000 | 0.000000 | 0.000223 |
| 270 | P270 | 0.000034 | 0.000331 | 0.000000 | 0.000000 | N/A | 0.000365 | 0.000000 | 0.000000 | 0.000365 |
| 271 | P271 | 0.000850 | 0.000549 | 0.000000 | 0.000000 | N/A | 0.001399 | 0.000000 | 0.000000 | 0.001399 |
| 272 | P272 | 0.001391 | 0.000549 | 0.000000 | 0.000000 | N/A | 0.001940 | 0.000000 | 0.049972 | 0.051912 |
| 273 | P273 | 0.000536 | 0.001336 | 0.000000 | 0.000000 | N/A | 0.001872 | 0.000000 | 0.000000 | 0.001872 |
| 274 | P274 | 0.001653 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.002321 | 0.000000 | 0.000000 | 0.002321 |
| 275 | P275 | 0.000773 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.001441 | 0.000000 | 0.000000 | 0.001441 |
| 276 | P276 | 0.000870 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.001538 | 0.000000 | 0.000000 | 0.001538 |
| 277 | P277 | 0.000193 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.000861 | 0.000000 | 0.000000 | 0.000861 |
| 278 | P278 | 0.002535 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.003203 | 0.000000 | 0.000000 | 0.003203 |
| 279 | P279 | 0.001128 | 0.000841 | 0.000000 | 0.000000 | N/A | 0.001969 | 0.000000 | 0.099377 | 0.101346 |
| 280 | P280 | 0.000291 | 0.000443 | 0.000000 | 0.000000 | N/A | 0.000734 | 0.000000 | 0.000000 | 0.000734 |
| 281 | P281 | 0.000291 | 0.000443 | 0.000000 | 0.000000 | N/A | 0.000734 | 0.000000 | 0.000000 | 0.000734 |
| 282 | P282 | 0.000702 | 0.000443 | 0.000000 | 0.000000 | N/A | 0.001144 | 0.000000 | 0.109598 | 0.110743 |
| 283 | P283 | 0.000629 | 0.000443 | 0.000000 | 0.000000 | N/A | 0.001072 | 0.000000 | 0.000000 | 0.001072 |
| 284 | P284 | 0.000002 | 0.000002 | 0.000000 | 0.000000 | N/A | 0.000004 | 0.000000 | 0.000000 | 0.000004 |
| 288 | P288 | 0.002761 | 0.000370 | 0.000000 | 0.000000 | N/A | 0.003130 | 0.000000 | 0.000000 | 0.003130 |
| 289 | P289 | 0.000629 | 0.000301 | 0.000000 | 0.000000 | N/A | 0.000930 | 0.000000 | 0.000000 | 0.000930 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 290 | P290 | 0.000702 | 0.000443 | 0.000000 | 0.000000 | N/A | 0.001144 | 0.000000 | -0.109598 | -0.108454 |
| 291 | P291 | 0.000291 | 0.000443 | 0.000000 | 0.000000 | N/A | 0.000734 | 0.000000 | 0.000000 | 0.000734 |
| 292 | P292 | 0.000291 | 0.000626 | 0.000000 | 0.000000 | N/A | 0.000917 | 0.000000 | 0.000000 | 0.000917 |
| 293 | P293 | 0.001128 | 0.000730 | 0.000000 | 0.000000 | N/A | 0.001858 | 0.000000 | -0.099377 | -0.097519 |
| 294 | P294 | 0.002535 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.003203 | 0.000000 | 0.000000 | 0.003203 |
| 295 | P295 | 0.000193 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.000861 | 0.000000 | 0.000000 | 0.000861 |
| 296 | P296 | 0.000870 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.001538 | 0.000000 | 0.000000 | 0.001538 |
| 297 | P297 | 0.000773 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.001441 | 0.000000 | 0.000000 | 0.001441 |
| 298 | P298 | 0.001653 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.002321 | 0.000000 | 0.000000 | 0.002321 |
| 299 | P299 | 0.000812 | 0.000668 | 0.000000 | 0.000000 | N/A | 0.001480 | 0.000000 | 0.000000 | 0.001480 |
| 300 | P300 | 0.001126 | 0.004410 | 0.000000 | 0.000000 | N/A | 0.005536 | 0.000000 | 0.047347 | 0.052884 |
| 301 | P301 | 0.000017 | 0.000078 | 0.000000 | 0.000000 | N/A | 0.000095 | 0.000000 | 0.000000 | 0.000095 |
| 302 | P302 | 0.000145 | 0.000078 | 0.000000 | 0.000000 | N/A | 0.000223 | 0.000000 | 0.000000 | 0.000223 |
| 303 | P303 | 0.000068 | 0.000078 | 0.000000 | 0.000000 | N/A | 0.000146 | 0.000000 | 0.000000 | 0.000146 |
| 304 | P304 | 0.000850 | 0.000906 | 0.000000 | 0.000000 | N/A | 0.001756 | 0.000000 | 0.000000 | 0.001756 |
| 305 | P305 | 0.001391 | 0.000549 | 0.000000 | 0.000000 | N/A | 0.001940 | 0.000000 | -0.049972 | -0.048032 |
| 306 | P306 | 0.000070 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000070 | 0.000000 | 0.000000 | 0.000070 |
| 307 | P307 | 0.011344 | 0.002572 | 0.000000 | 0.000000 | N/A | 0.013917 | 0.000000 | 0.000000 | 0.013917 |
| 308 | P308 | 0.009776 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.011980 | 0.000000 | 0.000000 | 0.011980 |
| 309 | P309 | 0.000805 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.003010 | 0.000000 | -0.033820 | -0.030810 |
| 310 | P310 | 0.000309 | 0.000366 | 0.000000 | 0.000000 | N/A | 0.000675 | 0.000000 | 0.000000 | 0.000675 |
| 311 | P311 | 0.000309 | 0.000549 | 0.000000 | 0.000000 | N/A | 0.000858 | 0.000000 | 0.000000 | 0.000858 |
| 312 | P312 | 0.000064 | 0.000018 | 0.000000 | 0.000000 | N/A | 0.000082 | 0.000000 | 0.000000 | 0.000082 |
| 313 | P313 | 0.001477 | 0.003594 | 0.000000 | 0.000000 | N/A | 0.005071 | 0.000000 | 0.000000 | 0.005071 |
| 314 | P314 | 0.000064 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000073 | 0.000000 | 0.000000 | 0.000073 |
| 315 | P315 | 0.000402 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.002607 | 0.000000 | 0.000000 | 0.002607 |
| 316 | P316 | 0.014683 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.016888 | 0.000000 | 0.000000 | 0.016888 |
| 317 | P317 | 0.009856 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.012061 | 0.000000 | 0.000000 | 0.012061 |
| 318 | P318 | 0.000805 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.003010 | 0.000000 | 0.033820 | 0.036829 |
| 319 | P319 | 0.001477 | 0.003594 | 0.000000 | 0.000000 | N/A | 0.005071 | 0.000000 | 0.000000 | 0.005071 |
| 320 | P320 | 0.006984 | 0.005378 | 0.087500 | 0.000000 | N/A | 0.099862 | 0.000000 | 0.000000 | 0.099862 |
| 321 | P321 | 0.012556 | 0.007571 | 0.000000 | 0.000000 | N/A | 0.020126 | 0.000000 | 0.000000 | 0.020126 |
| 322 | P322 | 0.000006 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000014 | 0.000000 | 0.000000 | 0.000014 |
| 323 | P323 | 0.000027 | 0.000013 | 0.011667 | 0.007799 | N/A | 0.019505 | 0.000000 | 0.000000 | 0.019505 |
| 324 | P324 | 0.000006 | 0.000009 | 0.000000 | 0.000000 | N/A | 0.000014 | 0.000000 | 0.000000 | 0.000014 |
| 325 | P325 | 0.000118 | 0.000275 | 0.000000 | 0.000000 | N/A | 0.000393 | 0.000000 | 0.000000 | 0.000393 |
| 326 | P326 | 0.012556 | 0.003977 | 0.000000 | 0.000000 | N/A | 0.016533 | 0.000000 | 0.000000 | 0.016533 |
| 327 | P327 | 0.000118 | 0.000824 | 0.000000 | 0.000000 | N/A | 0.000942 | 0.000000 | 0.000000 | 0.000942 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 328 | P328 | 0.000414 | 0.000266 | 0.000000 | 0.000000 | N/A | 0.000680 | 0.000000 | 0.007572 | 0.008252 |
| 329 | P329 | 0.000552 | 0.000133 | 0.000000 | 0.000000 | N/A | 0.000685 | 0.000000 | 0.000000 | 0.000685 |
| 330 | P330 | 0.000138 | 0.000133 | 0.000000 | 0.000000 | N/A | 0.000271 | 0.000000 | 0.000000 | 0.000271 |
| 331 | P331 | 0.000011 | 0.000017 | 0.005833 | 0.012546 | N/A | 0.018407 | 0.000000 | 0.000000 | 0.018407 |
| 332 | P332 | 0.000034 | 0.000019 | 0.000000 | 0.000000 | N/A | 0.000053 | 0.000000 | 0.000000 | 0.000053 |
| 333 | P333 | 0.000011 | 0.000017 | 0.005833 | 0.012510 | N/A | 0.018372 | 0.000000 | 0.000000 | 0.018372 |
| 334 | P334 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 335 | P335 | 0.000000 | 0.000000 | 0.002917 | 0.006265 | N/A | 0.009182 | 0.000000 | 0.000000 | 0.009182 |
| 336 | P336 | 0.000002 | 0.000002 | 0.000000 | 0.000000 | N/A | 0.000004 | 0.000000 | 0.000000 | 0.000004 |
| 337 | P337 | 0.000001 | 0.000001 | 0.000000 | 0.000000 | N/A | 0.000001 | 0.000000 | 0.000000 | 0.000001 |
| 338 | P338 | 0.000552 | 0.000133 | 0.000000 | 0.000000 | N/A | 0.000685 | 0.000000 | 0.000000 | 0.000685 |
| 339 | P339 | 0.000414 | 0.000133 | 0.000000 | 0.000000 | N/A | 0.000547 | 0.000000 | -0.007572 | -0.007025 |
| 340 | P340 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 341 | P341 | 0.000001 | 0.000001 | 0.000000 | 0.000000 | N/A | 0.000002 | 0.000000 | 0.000000 | 0.000002 |
| 342 | P342 | 0.000275 | 0.000100 | 0.000000 | 0.000000 | N/A | 0.000375 | 0.000000 | 0.000000 | 0.000375 |
| 343 | P343 | 0.000138 | 0.000000 | 0.035000 | 0.018369 | N/A | 0.053506 | 0.000000 | 0.000000 | 0.053506 |
| 344 | P344 | 0.000275 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000275 | 0.000000 | 0.000000 | 0.000275 |
| 345 | P345 | 0.000001 | 0.000001 | 0.000000 | 0.000000 | N/A | 0.000002 | 0.000000 | 0.000000 | 0.000002 |
| 346 | P346 | 0.000782 | 0.000196 | 0.000000 | 0.000000 | N/A | 0.000978 | 0.000000 | 0.000000 | 0.000978 |
| 347 | P347 | 0.000097 | 0.000067 | 0.000000 | 0.000000 | N/A | 0.000164 | 0.000000 | 0.000000 | 0.000164 |
| 348 | P348 | 0.000012 | 0.000014 | 0.000000 | 0.000000 | N/A | 0.000026 | 0.000000 | 0.000000 | 0.000026 |
| 349 | P349 | 0.000012 | 0.000041 | 0.000000 | 0.000000 | N/A | 0.000053 | 0.000000 | 0.000000 | 0.000053 |
| 350 | P350 | 0.000097 | 0.000137 | 0.000000 | 0.000000 | N/A | 0.000234 | 0.000000 | 0.000000 | 0.000234 |
| 351 | P351 | 0.000782 | 0.000288 | 0.000000 | 0.000000 | N/A | 0.001070 | 0.000000 | 0.000000 | 0.001070 |
| 352 | P352 | 0.000609 | 0.000472 | 0.000000 | 0.000000 | N/A | 0.001081 | 0.000000 | 0.000000 | 0.001081 |
| 353 | P353 | 0.000304 | 0.000000 | 0.046667 | 0.027179 | N/A | 0.074150 | 0.000000 | 0.000000 | 0.074150 |
| 354 | P354 | 0.000609 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000609 | 0.000000 | 0.000000 | 0.000609 |
| 355 | P355 | 0.000609 | 0.000472 | 0.000000 | 0.000000 | N/A | 0.001081 | 0.000000 | 0.000000 | 0.001081 |
| 356 | P356 | 0.005189 | 0.002205 | 0.000000 | 0.000000 | N/A | 0.007394 | 0.000000 | 0.000000 | 0.007394 |
| 357 | P357 | 0.000304 | 0.000000 | 0.046667 | 0.027140 | N/A | 0.074111 | 0.000000 | 0.000000 | 0.074111 |
| 358 | P358 | 0.000609 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000609 | 0.000000 | 0.000000 | 0.000609 |
| 359 | P359 | 0.000002 | 0.000002 | 0.000000 | 0.000000 | N/A | 0.000004 | 0.000000 | 0.000000 | 0.000004 |
| 360 | P360 | 0.000002 | 0.000005 | 0.000000 | 0.000000 | N/A | 0.000007 | 0.000000 | 0.000000 | 0.000007 |
| 361 | P361 | 0.002426 | 0.001632 | 0.000000 | 0.000000 | N/A | 0.004058 | 0.000000 | 0.000000 | 0.004058 |
| 362 | P362 | 0.001213 | 0.000000 | 0.046667 | 0.021426 | N/A | 0.069306 | 0.000000 | 0.000000 | 0.069306 |
| 363 | P363 | 0.002426 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.002426 | 0.000000 | 0.000000 | 0.002426 |
| 364 | P364 | 0.000010 | 0.000037 | 0.000000 | 0.000000 | N/A | 0.000046 | 0.000000 | 0.000000 | 0.000046 |
| 365 | P365 | 0.000282 | 0.000921 | 0.000000 | 0.000000 | N/A | 0.001204 | 0.000000 | 0.003786 | 0.004990 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|-----------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 366 | P366 | 0.001364 | 0.000875 | 0.000000 | 0.000000 | N/A | 0.002239 | 0.000000 | 0.000000 | 0.002239 |
| 367 | P367 | 0.000682 | 0.000438 | 0.037917 | 0.009357 | N/A | 0.048394 | 0.000000 | 0.000000 | 0.048394 |
| 368 | P368 | 0.001364 | 0.000438 | 0.000000 | 0.000000 | N/A | 0.001802 | 0.000000 | 0.000000 | 0.001802 |
| 369 | P369 | 0.000024 | 0.000097 | 0.000000 | 0.000000 | N/A | 0.000121 | 0.000000 | 0.000000 | 0.000121 |
| 370 | P370 | 0.000282 | 0.000921 | 0.000000 | 0.000000 | N/A | 0.001204 | 0.000000 | -0.003786 | -0.002582 |
| 371 | P371 | 0.000010 | 0.000040 | 0.000000 | 0.000000 | N/A | 0.000050 | 0.000000 | 0.000000 | 0.000050 |
| 372 | P372 | 0.000081 | 0.000043 | 0.017500 | 0.005630 | N/A | 0.023254 | 0.000000 | 0.000000 | 0.023254 |
| 373 | P373 | 0.000377 | 0.000043 | 0.000000 | 0.000000 | N/A | 0.000420 | 0.000000 | 0.000000 | 0.000420 |
| 374 | P374 | 0.000011 | 0.000191 | 0.000000 | 0.000000 | N/A | 0.000202 | 0.000000 | 0.000000 | 0.000202 |
| 375 | P375 | 0.001364 | 0.000875 | 0.000000 | 0.000000 | N/A | 0.002239 | 0.000000 | 0.000000 | 0.002239 |
| 376 | P376 | 0.000010 | 0.000040 | 0.000000 | 0.000000 | N/A | 0.000050 | 0.000000 | 0.000000 | 0.000050 |
| 377 | P377 | 0.000282 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000282 | 0.000000 | 0.003786 | 0.004068 |
| 378 | P378 | 0.000377 | 0.000043 | 0.000000 | 0.000000 | N/A | 0.000420 | 0.000000 | 0.000000 | 0.000420 |
| 379 | P379 | 0.000282 | 0.001295 | 0.000000 | 0.000000 | N/A | 0.001578 | 0.000000 | -0.003786 | -0.002208 |
| 380 | P380 | 0.001364 | 0.000438 | 0.000000 | 0.000000 | N/A | 0.001802 | 0.000000 | 0.000000 | 0.001802 |
| 381 | P381 | 0.000682 | 0.000438 | 0.037917 | 0.008003 | N/A | 0.047039 | 0.000000 | 0.000000 | 0.047039 |
| 382 | P382 | 0.000081 | 0.000043 | 0.017500 | 0.005062 | N/A | 0.022686 | 0.000000 | 0.000000 | 0.022686 |
| 383 | P383 | 0.000011 | 0.000003 | 0.000000 | 0.000000 | N/A | 0.000014 | 0.000000 | 0.000000 | 0.000014 |
| 384 | P384 | 0.008863 | 0.003594 | 0.000000 | 0.000000 | N/A | 0.012457 | 0.000000 | 0.000000 | 0.012457 |
| 385 | P385 | 0.004431 | 0.000000 | 0.087500 | 0.028944 | N/A | 0.120876 | 0.000000 | 0.000000 | 0.120876 |
| 389 | P389 | 0.000377 | 0.000086 | 0.000000 | 0.000000 | N/A | 0.000464 | 0.000000 | 0.000000 | 0.000464 |
| 390 | P390 | 0.000010 | 0.000013 | 0.000000 | 0.000000 | N/A | 0.000024 | 0.000000 | 0.000000 | 0.000024 |
| 391 | P391 | 0.000001 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000001 | 0.000000 | 0.000000 | 0.000001 |
| 392 | P392 | 0.000000 | 0.000000 | 0.002917 | 0.001104 | N/A | 0.004021 | 0.000000 | 0.000000 | 0.004021 |
| 393 | P393 | 0.000001 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000001 | 0.000000 | 0.000000 | 0.000001 |
| 394 | P394 | 0.000377 | 0.000029 | 0.000000 | 0.000000 | N/A | 0.000406 | 0.000000 | 0.000000 | 0.000406 |
| 395 | P395 | 0.000010 | 0.000013 | 0.000000 | 0.000000 | N/A | 0.000024 | 0.000000 | 0.000000 | 0.000024 |
| 396 | P396 | 0.000001 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000001 | 0.000000 | 0.000000 | 0.000001 |
| 397 | P397 | 0.000000 | 0.000000 | 0.002917 | 0.000999 | N/A | 0.003917 | 0.000000 | 0.000000 | 0.003917 |
| 398 | P398 | 0.000001 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000001 | 0.000000 | 0.000000 | 0.000001 |
| 399 | P399 | 0.000020 | 0.000078 | 0.000000 | 0.000000 | N/A | 0.000098 | 0.000000 | 0.000000 | 0.000098 |
| 400 | P400 | 0.000040 | 0.000166 | 0.000000 | 0.000000 | N/A | 0.000206 | 0.000000 | 0.000000 | 0.000206 |
| 401 | P401 | 0.000245 | 0.000790 | 0.000000 | 0.000000 | N/A | 0.001035 | 0.000000 | 0.003596 | 0.004631 |
| 402 | P402 | 0.000162 | 0.000086 | 0.000000 | 0.000000 | N/A | 0.000248 | 0.000000 | 0.000000 | 0.000248 |
| 403 | P403 | 0.000081 | 0.000043 | 0.017500 | 0.008462 | N/A | 0.026086 | 0.000000 | 0.000000 | 0.026086 |
| 404 | P404 | 0.000162 | 0.000043 | 0.000000 | 0.000000 | N/A | 0.000205 | 0.000000 | 0.000000 | 0.000205 |
| 405 | P405 | 0.000245 | 0.000790 | 0.000000 | 0.000000 | N/A | 0.001035 | 0.000000 | -0.003596 | -0.002562 |
| 406 | P406 | 0.001364 | 0.000875 | 0.000000 | 0.000000 | N/A | 0.002239 | 0.000000 | 0.000000 | 0.002239 |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|--------------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 407 | P407 | 0.000682 | 0.000438 | 0.037917 | 0.014423 | N/A | 0.053459 | 0.000000 | 0.000000 | 0.053459 |
| 408 | P408 | 0.001364 | 0.000438 | 0.000000 | 0.000000 | N/A | 0.001802 | 0.000000 | 0.000000 | 0.001802 |
| 409 | P409 | 0.000010 | 0.000178 | 0.000000 | 0.000000 | N/A | 0.000188 | 0.000000 | 0.000000 | 0.000188 |
| 410 | P410 | 0.000245 | 0.000395 | 0.000000 | 0.000000 | N/A | 0.000640 | 0.000000 | 0.003596 | 0.004236 |
| 411 | P411 | 0.001364 | 0.000875 | 0.000000 | 0.000000 | N/A | 0.002239 | 0.000000 | 0.000000 | 0.002239 |
| 412 | P412 | 0.001364 | 0.000438 | 0.000000 | 0.000000 | N/A | 0.001802 | 0.000000 | 0.000000 | 0.001802 |
| 413 | P413 | 0.000245 | 0.001111 | 0.000000 | 0.000000 | N/A | 0.001356 | 0.000000 | -0.003596 | -0.002241 |
| 414 | P414 | 0.000162 | 0.000086 | 0.000000 | 0.000000 | N/A | 0.000248 | 0.000000 | 0.000000 | 0.000248 |
| 415 | P415 | 0.000081 | 0.000043 | 0.017500 | 0.007662 | N/A | 0.025286 | 0.000000 | 0.000000 | 0.025286 |
| 416 | P416 | 0.000162 | 0.000043 | 0.000000 | 0.000000 | N/A | 0.000205 | 0.000000 | 0.000000 | 0.000205 |
| 417 | P417 | 0.000682 | 0.000438 | 0.037917 | 0.012689 | N/A | 0.051726 | 0.000000 | 0.000000 | 0.051726 |
| 418 | P418 | 0.000010 | 0.000024 | 0.000000 | 0.000000 | N/A | 0.000034 | 0.000000 | 0.000000 | 0.000034 |
| 419 | P419 | 0.000021 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.000021 | 0.000000 | 0.000000 | 0.000021 |
| 420 | P420 | 0.000072 | 0.000016 | 0.000000 | 0.000000 | N/A | 0.000089 | 0.000000 | 0.000000 | 0.000089 |
| 422 | P422 | 0.000072 | 0.000033 | 0.000000 | 0.000000 | N/A | 0.000106 | 0.000000 | 0.000000 | 0.000106 |
| 423 | P423 | 0.000021 | 0.000016 | 0.000000 | 0.000000 | N/A | 0.000037 | 0.000000 | 0.000000 | 0.000037 |
| 425 | P425 | 0.008863 | 0.000000 | 0.000000 | 0.000000 | N/A | 0.008863 | 0.000000 | 0.000000 | 0.008863 |
| 7 | Closed. P7 | | | | | | | | | |
| 8 | Closed. P8 | | | | | | | | | |
| 9 | Closed. P9 | | | | | | | | | |
| 10 | Closed. P10 | | | | | | | | | |
| 11 | Closed. P11 | | | | | | | | | |
| 12 | Closed. P12 | | | | | | | | | |
| 13 | Closed. P13 | | | | | | | | | |
| 14 | Closed. P14 | | | | | | | | | |
| 15 | Closed. P15 | | | | | | | | | |
| 44 | Closed. P44 | | | | | | | | | |
| 45 | Closed. P45 | | | | | | | | | |
| 46 | Closed. P46 | | | | | | | | | |
| 47 | Closed. P47 | | | | | | | | | |
| 48 | Closed. P48 | | | | | | | | | |
| 49 | Closed. P49 | | | | | | | | | |
| 68 | Closed. P68 | | | | | | | | | |
| 69 | Closed. P69 | | | | | | | | | |
| 70 | Closed. P70 | | | | | | | | | |
| 133 | Closed. P133 | | | | | | | | | |
| 136 | Closed. P136 | | | | | | | | | |
| 147 | Closed. P147 | | | | | | | | | |

| Pipe Id | Pipe Name | Energy Loss To Pipe Friction | Energy Loss To Pipe Fittings | Energy Loss To Pipe Components | Energy Loss To Pipe Control Valves | Energy Loss To Pump Inefficiency | SUBTOTAL Loss Pipe Items +Pump | Energy Loss To Discharge Pressure | Energy Loss To Change in Elevation | TOTAL USED Sum of All Items |
|---------|--------------|---------------------------------|---------------------------------|-----------------------------------|--|-------------------------------------|-----------------------------------|---|--|--------------------------------|
| 148 | Closed. P148 | | | | | | | | | |
| 149 | Closed. P149 | | | | | | | | | |
| 175 | Closed. P175 | | | | | | | | | |
| 176 | Closed. P176 | | | | | | | | | |
| 177 | Closed. P177 | | | | | | | | | |
| 285 | Closed. P285 | | | | | | | | | |
| 286 | Closed. P286 | | | | | | | | | |
| 287 | Closed. P287 | | | | | | | | | |

Results Log Summary

Final Solution Details:

Calculation Engine:
Method of Solution: Non-Compressible Flow [Accurate]
Method of Calculation: Darcy-Weisbach Equation
Friction Model: Colebrook-White Friction Factors
Flow Balance to: 0.000000000000 lb/sec
Node Pressure Balance to: 0.000000003811 psi

Configuration:

Pipes: 391
Tanks: 2
Join Points: 363
Demand Pressures: 0
Pumps: 0
Components: 48
Control Valves: 47
Overall Volumes:
Flow Demands In: 380.00 US gpm
Flow Demands Out: 0.00 US gpm
Flow Controls: 265.00 US gpm
System Volume: 63.117 ft³ (does not include any closed pipes)

Total Friction Losses in all pipes is: 67.759309 psi
Total Fitting Losses in all pipes is: 56.438316 psi
Total Component Losses in all pipes is: 364.200000 psi
Total Control Valve Losses in all pipes is: 199.956993 psi

Lowest Pressure at any node is: 0.000000 psi.g (10 (N10))
Highest Pressure at any node is: 41.387645 psi.g (224 (N224))

Lowest Elevation of any node is: 0.200 ft (N233)
Highest Elevation of any node is: 43.500 ft (N218)