

VALVE AUTOMATION

Main Line Supply Valve Calibration and Automated Assemblies Capabilities

Main Line has a fully functional in house valve automation shop. This includes a fully operational 4 axis CNC mill. This enables Main Line to manufacture specialty brackets and standard brackets with the quickest lead time in the market.

Quality Assurance is Our Commitment to You

Main Line Supply is an ISO 9001:2015 registered company. Main Line Supply is fully capability of fulfilling any of your automation needs.

- Standard QR and Barcoding for traceablity compliance
- Custom Manufacturing Capabilities
- More than 65 Years Experience in Valve Automation







BALL VALVES

- Apollo
- Sharpe
- J-Flow
- OVC
- Powell
- Worcester

ACTUATORS

- Apollo
- RotorkJ-Flow
- Sharpe
- El-O-Matic
- Habonim

PLUG VALVES

- ChemValve
- Durco*
- Tufline*

BUTTERFLY VALVES

- Apollo
- Stockham
- OVCPowell
- Foweii
- Demco
- WKM

V-BALL & GLOBE VALVES

- Worcester
- J-Flow
- Sharpe
- Fisher Remanufactured
- Masonneilan Remanufactured

REGULATORS

- TLV
- Armstrong
- Watson McDaniel
- Remanufactured Fisher

PINCH VALVES

- Red Valve
- RF Valve

DIAPHRAGM

- GIE
- Spears

SANITARY VALVES

- Topline
- Dixon
- VNE
- Sharpe
- J-Flow

KNIFE GATES

- Keckley
- Fabri*

POSITIONERS

- Westlock
- Siemens
- PMV
- J-Flow
- Rotork-YTC

LIMIT SWITCHES

- J-Flow
- Westlock
- PMV
- Worcester

SOLENOID VALVES

- ASCO
- Crane
- Sharpe
- J-Flow
- Parker/Gold Ring
- Parker/Skinner

SPECIALTY BRACKETS

 In House 4-axis CNC Milling Machine









Worcester Controls













Cincinnati

121 Hosea Ave Cincinnati OH 45215 (513) 242-8700

Headquarters

300 North Findlay Street Dayton Ohio 45403 (937) 254-6910



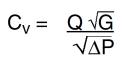


Lima 1918 Bible Rd. Lima OH 45801 (419) 999-0012



VALVE AUTOMATION

Valve Sizing Calculations for Liquid



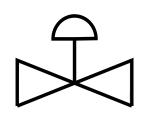
Cv - Flow coefficient

Q - Flow in GPM

ΔP - Differential Pressure

(Difference between inlet and outlet pressure) in PSI.

G - Specific Gravity (Taken from Properties of Liquids)



Valve Sizing Calculations for Steam

SATURATED STEAM

SUBCRITICAL FLOW

$$C_v = \frac{W}{2.1 \sqrt{\Delta P(P_1 + P_2)}}$$

When ΔP is less than F_L^2 ($P^1/2$)

When ΔP is more than $F_L^2(P^1/2)$

$$C_v = \frac{W}{1.83F_I P_1}$$

SUPERHEATED STEAM

SUBCRITICAL FLOW

When ΔP is less than F_L^2 (P¹/2)

$$C_v = \frac{W(1 + 0.0007T_{sh})}{2.1\sqrt{\Delta P(P_1 + P_2)}}$$

CRITICAL FLOW

When ΔP is more than $F_L^2(P^1/2)$

$$C_v = \frac{W(1+0.0007T_{sh})}{1.83F_L P_1}$$

 C_V = valve coefficient

FL = pressure recovery factor

 $G_Q = gas specific gravity (air = 1.0)$

P₁ = absolute upstream pressure, psia

P₂ = absolute downstream pressure, psia

Cincinnati

121 Hosea Ave Cincinnati OH 45215 (513) 242-8700 ΔP = pressure drop P1 – P2, psi

q = gas flow rate at 14.7 psia and 60°F, scfh

 $T = \text{flow temperature}, ^{\circ}R(460 + ^{\circ}F)$

T_{Sh} = steam superheat, °F

W = flow rate, pounds per hr

Headquarters

300 North Findlay Street Dayton Ohio 45403 (937) 254-6910





SATURATED STEAM TABLE

Col. 1 Cauge Pressure Col. 3 Steam Pressure (Pf) Col. 5 Steam Col. 2 Col. 4 Col. 5 Co									Col. 8
990 1991 990 9		Gauge	Absolute Pressure	Steam Temp.	Heat of Sat. Liquid	Latent Heat (Btu/	Total Heat of Steam	Specific Volume of Sat. Liquid	Specific Volume of Sat. Steam (cu
Page 1 1968 1978 1989	\vdash	29 743	0.08854	32.00	0.00	1075.8	1075.8	0.016022	3306.00
100 101	nches of Vacuum								1526.00
3.454									
3.454					ı				
3.454									
3.454									
3.454									
1.418	=								
0.0 14.696 212.00 180.07 970.3 1150.4 0.016715 26.88 1.3 16.0 216.32 184.42 967.6 1152.0 0.016746 24.73 2.3 17.0 219.44 187.56 965.5 1153.1 0.016768 23.38 5.3 20.0 227.96 196.16 960.1 1156.3 0.016830 20.00 10.3 25.0 24.07 208.42 952.1 1160.6 0.016922 16.34 15.3 30.0 250.33 218.82 945.3 1164.1 0.017004 13.73 20.3 35.0 259.28 227.91 999.2 1167.1 0.017078 11.99 25.3 40.0 267.25 236.03 933.7 1169.7 0.017146 10.56 30.3 45.0 274.44 243.36 928.6 1172.0 0.017209 9.40 40.3 55.0 287.07 256.30 919.6 1175.9 0.017325 7.79 50.3 65.0 297.97 267.50 911.6 1179.1 0.017229 6.66 60.3 75.0 307.60 277.43 904.5 1181.9 0.017524 5.82 90.3 316.5 256.39 897.8 1184.2 0.017635 5.82 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.90 880.0 1188.8 0.017850 3.88 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 312.3 125.3 140.0 355.79 338.50 21 321.55 870.6 1192.4 0.017991 3.33 125.3 145.0 355.76 327.70 865.8 1193.5 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018057 3.11 160.3 175.0 379.67 353.10 844.9 1198.0 0.018050 3.34 145.0 466.2 477.00 780.5 120.4 0.019748 0.39 120.3 379.67 353.10 844.9 1198.0 0.018050 3.34 145.0 360.0 444.59 424.00 780.5 120.4 0.019748 0.39 120.0 444.59 424.00 780.5 120.4 0.019748 0.39 120.0 567.22 571.70 611.7 1183.4 0.02232 0.056 120.0 567.22 571.70 611.7 1183.4 0.02232 0.056 120.0 567.22 571.70 611.7 1183.4 0.02232 0.36 120.0 565.2 671.70 613.71 155.9 0	L								28.04
1.3 16.0 216.32 184.42 967.6 1152.0 0.016746 24.73 2.3 17.0 219.44 187.56 965.5 1153.1 0.016768 23.31 5.3 20.0 227.96 196.16 960.1 1156.3 0.016830 20.01 10.3 25.0 240.07 208.42 952.1 1160.6 0.016820 21.03 15.3 30.0 250.33 218.82 945.3 1164.1 0.017004 13.73 20.3 35.0 259.28 227.91 939.2 1167.1 0.017078 11.90 25.3 40.0 267.25 236.03 933.7 1168.7 0.017046 10.53 30.3 45.0 274.44 243.36 928.6 1172.0 0.017209 9.40 40.3 55.0 287.07 256.30 919.6 1175.9 0.017299 9.40 40.3 55.0 287.07 256.30 919.6 1175.9 0.01729 5.82 70.3 85.0 316.25 286.39 897.5 1181.9 0.017524 5.82 70.3 85.0 307.60 277.43 904.5 1181.9 0.017524 5.82 80.3 95.0 324.12 294.56 891.7 1186.2 0.017606 4.65 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.80 800.0 1188.8 0.017856 4.65 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 355.02 324.82 868.2 1193.0 0.018024 3.22 120.3 135.0 350.50 333.24 861.3 1194.6 0.018024 3.22 120.3 135.0 350.50 333.24 861.3 1194.6 0.018024 2.29 180.3 195.0 379.67 353.10 844.9 1198.0 0.018030 2.34 120.3 175.0 379.67 353.10 824.9 1198.0 0.018030 2.34 140.3 155.0 360.50 333.24 861.3 1194.6 0.018030 2.34 140.3 155.0 360.50 333.24 861.3 1194.6 0.018027 3.11 180.3 195.0 379.67 353.10 844.9 1198.0 0.018030 2.34 180.3 195.0 379.67 353.10 824.9 1198.0 0.018026 2.35 180.3 195.0 379.67 353.10 824.9 1199.0 0.018026 2.35 180.3 195.0 379.67 353.10 824.9 1199.0 0.018027 3.11 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 360.50 333.24 860.8 1193.5 0.018270 2.13 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 379.67 353.10 824.9 1199.0 0.018050 2.34 180.3 195.0 360.50 333.24 860.0 120.8 0.01860 2.34 180.0 444.59 424.00 780.5 1204.4 0.019748 0.93 180.0 447.									
2.3									24.75
5.3 20.0 227.96 196.16 960.1 1156.3 0.016830 20.00 10.3 25.0 240.07 208.42 952.1 1160.6 0.016922 16.30 15.3 30.0 250.33 218.82 985.3 1164.1 0.017074 13.79 25.3 35.0 259.28 227.91 939.2 1167.1 0.017078 11.99 25.3 30.3 45.0 274.44 243.36 928.6 1172.0 0.017209 9.40 40.3 55.0 287.07 256.30 919.6 1175.9 0.017429 6.66 60.3 75.0 307.60 277.43 904.5 1181.9 0.017325 7.79 26.30 919.6 1175.9 0.017429 6.66 60.3 75.0 307.60 277.43 904.5 1181.9 0.017429 6.66 60.3 95.0 36.50 297.97 267.50 911.6 1179.1 0.017429 6.66 60.3 95.0 316.25 268.39 897.8 1184.2 0.017633 5.72 90.3 105.0 331.36 302.10 886.0 1188.2 0.017696 4.65 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 10.00 111.7 337.90 308.80 880.0 1188.8 0.017850 3.88 120.3 125.3 140.0 355.76 327.70 865.8 1193.5 0.018024 3.22 1193.3 155.0 360.3 353.02 324.82 868.2 1193.0 0.018024 3.22 1193.3 155.0 365.99 338.24 861.3 1194.6 0.018121 2.92 110.3 135.0 355.76 327.70 865.8 1193.5 0.018024 3.22 1193.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.3 195.0 379.67 353.10 844.9 1198.0 0.018024 2.25 1180.0 0.018024 2.25 1180.0 0.018024 2.25 1180.0 0.018024 2.25 1180.0 0.018024 2.25 1180.0 0.018024 2.25 1180.0 0.018024 2.25 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2.34 1180.0 0.018020 2									
10.3									20.09
15.3 30.0 250.33 218.82 945.3 1164.1 0.017004 13.75									
20.3 35.0 259.28 227.91 939.2 1167.1 0.017078 11.99 25.3 40.0 267.25 236.03 933.7 1169.7 0.017146 10.54 30.3 45.0 274.44 243.36 928.6 1172.0 0.017209 9.40 40.3 55.0 287.07 256.30 919.6 1175.9 0.017325 7.79 50.3 65.0 297.97 267.50 911.6 1179.1 0.017429 6.66 60.3 75.0 307.60 277.43 904.5 1181.9 0.017524 5.82 70.3 85.0 316.25 286.39 897.8 1184.2 0.017613 5.17 80.3 95.0 324.12 294.56 891.7 1186.2 0.017696 4.65 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.80 880.0 1188.8 0.017850 3.88 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 888.2 1193.0 0.018024 3.22 125.3 140.0 355.76 327.70 865.8 1193.5 0.018057 3.11 150.3 165.0 360.50 333.24 861.3 1194.6 0.018121 2.92 150.3 175.0 370.75 343.57 852.8 1195.5 0.018057 3.11 160.3 175.0 370.75 343.57 852.8 1196.5 0.018244 2.60 160.3 175.0 387.99 335.10 844.9 1198.0 0.018300 2.34 200.3 215.0 387.99 361.91 837.4 1199.3 0.018070 2.13 225.3 240.0 397.37 372.12 828.5 1196.5 0.018244 2.60 400.0 444.59 424.00 780.5 120.4 5 0.019748 1.74 500.0 471.33 393.84 809.0 120.8 0.018080 1.54 400.0 444.59 424.00 780.5 120.4 5 0.019748 0.33 120.0 567.22 571.70 611.7 1183.4 0.02232 0.36 120.0 567.22 571.70 611.7 1183.4 0.02232 0.36 120.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 635.82 671.70 463.4 1135.1 0.02268 0.24									13.75
25.3 40.0 267.25 236.03 933.7 1168.7 0.017146 10.59 30.3 45.0 274.44 243.36 928.6 1172.0 0.017209 9.40 40.3 55.0 287.07 256.30 919.6 1175.9 0.017209 9.40 60.3 75.0 307.60 277.43 904.5 1179.1 0.017249 6.66 60.3 75.0 307.60 277.43 904.5 1181.9 0.017524 5.82 70.3 85.0 316.25 286.39 897.8 1184.2 0.017613 5.17 80.3 95.0 324.12 294.56 891.7 1186.2 0.017613 5.17 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.0 800.0 1188.8 0.017896 4.65 110.3 125.0 344.33 315.68 875.4 1191.1 0.017775 4.23 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 120.3 135.0 355.76 327.70 865.8 1193.5 0.018027 3.11 140.3 155.0 360.50 333.24 861.3 1194.6 0.018121 2.92 150.3 165.0 365.99 338.53 857.1 1195.5 0.018024 2.60 150.3 175.0 379.67 353.10 844.9 1196.0 0.018060 2.34 160.3 175.0 379.67 353.10 844.9 1190.0 0.018060 2.34 225.3 240.0 397.37 372.12 828.5 1200.6 0.018240 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018260 2.34 400.0 444.59 424.00 780.5 1204.5 0.018360 2.34 400.0 444.59 424.00 780.5 1204.5 0.018366 1.54 600.0 466.21 471.60 731.6 120.2 0.001974 0.93 120.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 563.82 671.70 463.4 1135.1 0.02565 0.19									11.90
30.3 45.0 274.44 243.36 928.6 1172.0 0.017209 9.40 40.3 55.0 287.07 256.30 919.6 1175.0 0.017325 7.79 50.3 65.0 297.97 267.50 911.6 1175.9 0.017325 7.79 60.3 75.0 307.60 277.43 904.5 1181.9 0.017524 5.82 70.3 85.0 316.25 286.39 897.8 1184.2 0.017613 5.17 85.0 316.25 286.39 897.8 1186.2 0.017666 4.65 90.3 105.0 324.12 294.56 891.7 1186.2 0.017666 4.65 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.80 880.0 1188.1 0.017775 4.23 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 130.3 155.0 360.50 333.24 861.3 1194.6 0.018024 3.22 150.3 165.0 365.99 338.53 857.1 1195.6 0.018123 2.75 160.3 165.0 365.99 338.53 857.1 1195.6 0.018123 2.25 160.3 195.0 370.67 353.10 844.9 1190.0 0.018024 2.60 180.3 195.0 379.67 353.10 844.9 1190.0 0.018020 2.33 225.3 240.0 397.37 372.12 828.5 1200.6 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.92 250.3 265.0 406.11 331.60 820.1 1201.7 0.018728 1.74 450.0 4464.59 424.00 755.0 1204.4 0.019748 0.93 450.0 466.21 471.60 731.6 120.22 0.02013 0.77 1500.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 613.15 636.30 518.6 1155.9 0.02428 0.244 1700.0 613.15 636.30 518.6 1155.9 0.02248 0.244									
40.3 55.0 287.07 256.30 919.6 1175.9 0.017325 7.79 50.3 65.0 297.97 267.50 911.6 1179.1 0.017429 6.66 60.3 75.0 307.60 277.43 904.5 1181.9 0.017524 5.82 70.3 85.0 316.25 286.39 897.8 1184.2 0.017613 5.17 80.3 95.0 324.12 294.56 891.7 1186.2 0.017696 4.65 90.3 105.0 331.36 302.10 886.0 1188.1 0.017753 3.87 100.0 114.7 337.90 308.80 880.0 1188.8 0.017850 3.88 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 125.3 140.0 353.02 324.82 868.2 1193.0 0.018027 3.11 160.3 175.0 365.90 333.24 861.3 1194.6 0.018121 2.92 150.3 165.0 365.99 338.53 857.1 1195.6 0.018122 2.92 150.3 195.0 379.67 353.10 844.9 1198.0 0.01824 2.26 180.3 195.0 379.67 353.10 844.9 1198.0 0.01830 2.34 200.3 215.0 387.89 361.91 837.4 1199.3 0.018072 2.13 225.3 240.0 397.37 372.12 828.5 1196.5 0.018242 2.60 200.3 215.0 387.89 361.91 837.4 1199.3 0.018072 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018020 2.34 400.0 4414.39 393.84 809.0 1202.8 0.018986 1.54 400.0 446.28 437.20 767.4 1204.6 0.019748 0.39 400.0 447.89 424.00 780.5 1204.5 0.019340 1.16 600.0 486.21 471.60 731.6 1203.2 0.02031 0.077 500.0 596.23 611.60 556.3 1167.9 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 596.23 611.60 556.3 1167.9 0.02232 0.36 1700.0 613.15 536.30 519.6 1155.9 0.02248 0.228									9.40
50.3 65.0 297.97 267.50 911.6 1179.1 0.017429 6.66 60.3 75.0 307.60 277.43 904.5 1181.9 0.017524 5.82 70.3 85.0 316.25 286.39 897.8 1184.2 0.017613 5.17 90.3 90.3 105.0 316.25 296.39 897.8 1184.2 0.017613 5.17 90.3 105.0 313.6 302.10 886.0 1188.1 0.017755 4.23 100.0 114.7 337.90 308.80 880.0 1188.8 0.017850 3.88 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.55 870.6 1192.4 0.017991 3.33 125.3 140.0 355.76 327.70 865.8 1193.5 0.018057 3.11 91.5 10.0 118									
60.3 75.0 307.60 277.43 904.5 1181.9 0.017524 5.82 70.3 85.0 316.25 286.39 897.8 1184.2 0.017613 5.17 80.3 95.0 324.12 294.56 891.7 1186.2 0.017696 4.65 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.80 880.0 1188.8 0.017850 3.88 110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 120.3 155.0 365.50 333.24 861.3 1194.6 0.018024 3.22 130.3 145.0 355.76 327.70 865.8 1193.5 0.018024 3.22 150.3 165.0 365.99 338.53 857.1 1195.6 0.018121 2.29 160.3 175.0 370.75 343.57 852.8 1196.5 0.018133 2.75 180.3 195.0 379.67 353.10 844.9 1190.0 0.018024 2.60 180.3 195.0 379.67 353.10 844.9 1190.0 0.018020 2.33 180.3 245.0 387.89 361.91 837.4 1199.3 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.92 250.3 265.0 406.11 331.60 820.1 1201.7 0.018728 1.74 400.0 444.59 424.00 780.5 1204.5 0.018896 1.54 400.0 446.29 437.20 766.4 1204.6 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02031 0.77 1500.0 596.23 611.60 556.3 1167.9 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 596.23 611.60 556.3 1167.9 0.02242 0.02	PSIG								
70.3 85.0 316.25 286.39 897.8 1184.2 0.017613 5.17 80.3 95.0 324.12 294.56 891.7 1186.2 0.017696 4.65 90.3 105.0 331.35 302.10 886.0 1188.1 0.017755 3.88 110.3 125.0 344.33 315.68 675.4 1191.1 0.017920 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 125.3 140.0 355.06 327.70 865.8 1193.5 0.018057 3.11 140.3 155.0 360.50 333.24 861.3 1194.6 0.018121 2.92 150.3 165.0 365.9 338.53 857.1 1195.6 0.018122 2.92 150.3 165.0 365.9 338.53 857.1 1195.6 0.018122 2.92 150.3 165.0 365.9 379.67 353.10 844.9 1198.0 0.01824 2.60 160.3 175.0 370.75 343.57 852.8 1198.5 0.018244 2.60 180.3 195.0 379.67 353.10 844.9 1198.0 0.018380 2.34 200.3 215.0 387.89 361.91 837.4 1199.3 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.92 250.3 265.0 406.11 381.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 899.0 1202.8 0.018896 1.54 400.0 444.59 424.00 780.5 1204.5 0.018940 1.54 400.0 445.62 437.20 767.4 1204.6 0.019748 0.93 450.0 446.21 471.60 731.6 1203.2 0.02013 0.77 900.0 551.58 526.60 668.8 1195.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 613.15 536.30 519.6 1155.9 0.02248 0.2248 0.2048 0.2003 0.0163.80 1.2002 0.0228 0.2003 0.0000 635.82 671.70 463.4 1135.1 0.02565 0.19					ı				
80.3 95.0 324.12 294.56 891.7 1186.2 0.017696 4.65 90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.80 880.0 1188.8 0.017850 3.88 1103.3 125.5 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 876.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 1193.0 145.0 355.76 327.70 865.8 1193.5 0.018057 3.11 140.3 155.0 360.50 333.24 861.3 1194.6 0.018121 2.92 150.3 165.0 365.99 338.53 857.1 1195.5 0.018123 2.75 160.3 175.0 370.75 343.57 852.8 1196.5 0.018123 2.75 180.3 195.0 379.67 353.10 844.9 1198.0 0.01824 2.60 180.3 195.0 379.67 353.10 844.9 1198.0 0.018050 2.34 225.3 240.0 397.37 372.12 825.5 1200.6 0.018060 2.34 225.3 250.3 265.0 406.11 381.60 820.1 1201.7 0.018728 1.74 400.0 444.59 424.00 780.5 120.45 0.018896 1.54 400.0 446.28 437.20 767.4 1204.5 0.018940 1.56 600.0 466.21 471.60 731.6 1203.2 0.0213 0.03 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 635.82 671.70 463.4 1135.1 0.02565 0.19									
90.3 105.0 331.36 302.10 886.0 1188.1 0.017775 4.23 100.0 114.7 337.90 308.80 880.0 1188.8 0.017850 3.88 1103.3 125.0 344.33 315.68 575.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 149.0 353.02 324.82 868.2 1193.0 0.18027 3.21 120.3 145.0 355.02 324.82 868.2 1193.0 0.018024 3.22 3.21 140.3 155.0 360.50 333.24 861.3 1194.6 0.018021 2.22 140.3 155.0 365.59 338.53 857.1 1195.6 0.018123 2.75 180.3 165.0 365.99 338.53 857.1 1195.6 0.018123 2.75 180.3 185.0 365.99 338.53 857.1 1195.6 0.018123 2.75 180.3 195.0 379.67 353.10 844.9 1199.0 0.018380 2.34 225.3 240.0 397.37 372.12 828.5 1200.6 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018622 1.92 250.3 265.0 406.11 331.60 820.1 1201.7 0.018728 1.74 40.0 444.59 424.00 780.5 1204.5 0.018896 1.54 450.0 456.28 437.20 767.4 1204.6 0.019673 1.16 500.0 467.01 449.40 755.0 1204.5 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02031 3.77 1500.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 635.82 671.70 463.4 1135.1 0.02268 0.24									
100.0									4.23
110.3 125.0 344.33 315.68 875.4 1191.1 0.017922 3.59 120.3 135.0 350.21 321.85 870.6 1192.4 0.017991 3.33 125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 86.2 1193.0 145.0 355.76 327.70 865.8 1193.5 0.018057 3.11 140.3 155.0 360.50 333.24 861.3 1194.6 0.018121 2.92 150.3 165.0 365.99 333.53 857.1 1195.6 0.018121 2.92 150.3 175.0 370.75 343.57 852.8 1196.5 0.018244 2.60 160.3 175.0 370.75 343.57 852.8 1196.5 0.018244 2.60 180.3 195.0 379.67 353.10 844.9 1198.0 0.018360 2.34 200.3 215.0 387.99 361.91 837.4 1199.3 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.32 250.3 265.0 406.11 381.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 809.0 1202.8 0.018964 1.54 400.0 444.59 424.00 780.5 1204.5 0.019340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.33 500.0 467.01 449.40 755.0 1204.4 0.019748 0.33 600.0 466.21 471.60 731.6 1203.2 0.02013 0.77 900.0 596.23 611.60 753.6 1203.2 0.02013 0.77 1500.0 596.23 611.60 556.3 1167.9 0.02232 0.36 1700.0 613.15 836.30 518.6 1155.9 0.02428 0.224		100.0	114.7	337.90	308.80	880.0	1188.8		3.88
125.3 140.0 353.02 324.82 868.2 1193.0 0.018024 3.22 130.3 145.0 355.76 327.70 865.8 1193.5 0.018057 3.11 140.3 155.0 360.50 333.24 861.3 1194.6 0.018121 2.92 140.3 165.0 365.99 338.53 857.1 1195.6 0.018123 2.75 160.3 175.0 370.75 343.57 852.8 1196.5 0.018244 2.60 2.00 2.00 2.00 2.00 2.00 2.00 2.00		110.3	125.0	344.33	315.68	875.4	1191.1	0.017922	3.59
130.3		120.3	135.0	350.21	321.85	870.6	1192.4	0.017991	3.33
140.3 165.0 365.9 338.53 385.24 867.1 1195.6 0.018123 275.0 160.3 175.0 370.75 343.57 852.8 1196.5 0.018244 2.60 2.00.3 215.0 379.67 353.10 844.9 1198.0 0.018300 2.34 225.3 240.0 397.37 372.12 828.5 1200.6 0.018002 1.92 225.3 240.0 397.37 372.12 828.5 1200.6 0.018002 1.92 225.3 240.0 397.37 372.12 828.5 1200.6 0.018002 1.92 250.3 265.0 406.11 338.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 809.0 1202.8 0.018966 1.54 400.0 444.59 424.00 780.5 1204.5 0.018340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.55 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 613.15 636.30 519.6 1155.9 0.02248 0.248 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19		125.3	140.0	353.02	324.82	868.2	1193.0	0.018024	3.22
140.3 165.0 365.9 338.53 385.24 867.1 1195.6 0.018123 275.0 160.3 175.0 370.75 343.57 852.8 1196.5 0.018244 2.60 2.00.3 215.0 379.67 353.10 844.9 1198.0 0.018300 2.34 225.3 240.0 397.37 372.12 828.5 1200.6 0.018002 1.92 225.3 240.0 397.37 372.12 828.5 1200.6 0.018002 1.92 225.3 240.0 397.37 372.12 828.5 1200.6 0.018002 1.92 250.3 265.0 406.11 338.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 809.0 1202.8 0.018966 1.54 400.0 444.59 424.00 780.5 1204.5 0.018340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.55 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 613.15 636.30 519.6 1155.9 0.02248 0.248 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19		130.3	145.0	355.76	327.70	865.8	1193.5	0.018057	3.11
160.3 175.0 370.75 343.57 852.8 1196.5 0.018244 2.60 180.3 195.0 379.67 353.10 844.9 1198.0 0.018390 2.34 200.3 215.0 387.89 361.91 837.4 1199.3 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.92 25.3 265.0 406.11 331.60 820.1 1201.7 0.018728 1.74 400.0 417.33 393.84 809.0 1202.8 0.018896 1.54 400.0 444.59 424.00 780.5 1204.5 0.018896 1.54 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.5 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.55 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.248 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19		140.3	155.0	360.50	333.24	861.3	1194.6	0.018121	2.92
180.3 195.0 379.67 353.10 844.9 1198.0 0.018360 2.34 200.3 215.0 387.89 361.91 837.4 1198.3 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.92 250.3 265.0 406.11 381.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 809.0 1202.8 0.018896 1.54 400.0 444.59 424.00 780.5 1204.5 0.018340 1.54 450.0 456.28 437.20 767.4 1204.6 0.018547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.50 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 386.3 518.6 1155.9 0.02428 0.24		150.3	165.0	365.99	338.53	857.1	1195.6	0.018183	2.75
200.3 215.0 387.89 361.91 837.4 1199.3 0.018470 2.13 225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.92 250.3 265.0 406.111 381.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 809.0 1202.8 0.018896 1.54 400.0 444.59 424.00 780.5 1204.5 0.019340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 566.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19		160.3	175.0	370.75	343.57	852.8	1196.5	0.018244	2.60
225.3 240.0 397.37 372.12 828.5 1200.6 0.018602 1.92 250.3 265.0 406.11 331.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 809.0 1202.8 0.018896 1.54 400.0 444.59 424.00 780.5 1204.5 0.018340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 1700.0 635.82 671.70 463.4 1135.1 0.02565 0.19		180.3	195.0	379.67	353.10	844.9	1198.0	0.018360	2.34
250.3 265.0 406.11 381.60 820.1 1201.7 0.018728 1.74 300.0 417.33 393.84 809.0 1202.8 0.018986 1.54 400.0 444.59 424.00 780.5 1204.5 0.019340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24		200.3	215.0	387.89	361.91	837.4	1199.3	0.018470	2.13
300.0 417.33 393.84 809.0 1202.8 0.018896 1.54 400.0 444.99 422.00 780.5 1204.5 0.018340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.50 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1500.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19		225.3	240.0	397.37	372.12	828.5	1200.6	0.018602	1.92
400.0 444.59 424.00 780.5 1204.5 0.019340 1.16 450.0 456.28 437.20 767.4 1204.6 0.019547 1.03 500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1500.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19		250.3	265.0	406.11	381.60	820.1	1201.7	0.018728	1.74
450.0			300.0	417.33	393.84	809.0	1202.8	0.018896	1.54
500.0 467.01 449.40 755.0 1204.4 0.019748 0.93 600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1500.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19			400.0	444.59	424.00	780.5	1204.5	0.019340	1.16
600.0 486.21 471.60 731.6 1203.2 0.02013 0.77 900.0 531.98 526.60 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1500.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19			450.0	456.28	437.20	767.4	1204.6	0.019547	1.03
900.0 531.98 526.60 668.8 1195.4 0.02123 0.50 1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1500.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19			500.0	467.01	449.40	755.0	1204.4	0.019748	0.93
1200.0 567.22 571.70 611.7 1183.4 0.02232 0.36 1500.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19			600.0	486.21	471.60	731.6	1203.2	0.02013	0.77
1500.0 596.23 611.60 556.3 1167.9 0.02346 0.28 1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19			900.0	531.98	526.60	668.8	1195.4	0.02123	0.50
1700.0 613.15 636.30 519.6 1155.9 0.02428 0.24 2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19			1200.0	567.22	571.70	611.7	1183.4	0.02232	0.36
2000.0 635.82 671.70 463.4 1135.1 0.02565 0.19			1500.0	596.23	611.60	556.3	1167.9	0.02346	0.28
			1700.0	613.15	636.30	519.6	1155.9	0.02428	0.24
2500.0 668.13 730.60 360.5 1091.1 0.02860 0.13			2000.0	635.82	671.70	463.4	1135.1	0.02565	0.19
			2500.0	668.13	730.60	360.5	1091.1	0.02860	0.13
2700.0 679.55 756.20 312.1 1068.3 0.03027 0.11			2700.0	679.55	756.20	312.1	1068.3	0.03027	0.11
3206.2 705.40 902.70 0.0 902.7 0.05053 0.05			3206.2	705.40	902.70	0.0	902.7	0.05053	0.05

Lima

1918 Bible Rd.

Lima OH 45801

(419) 999-0012