

Applied Engineering Solutions

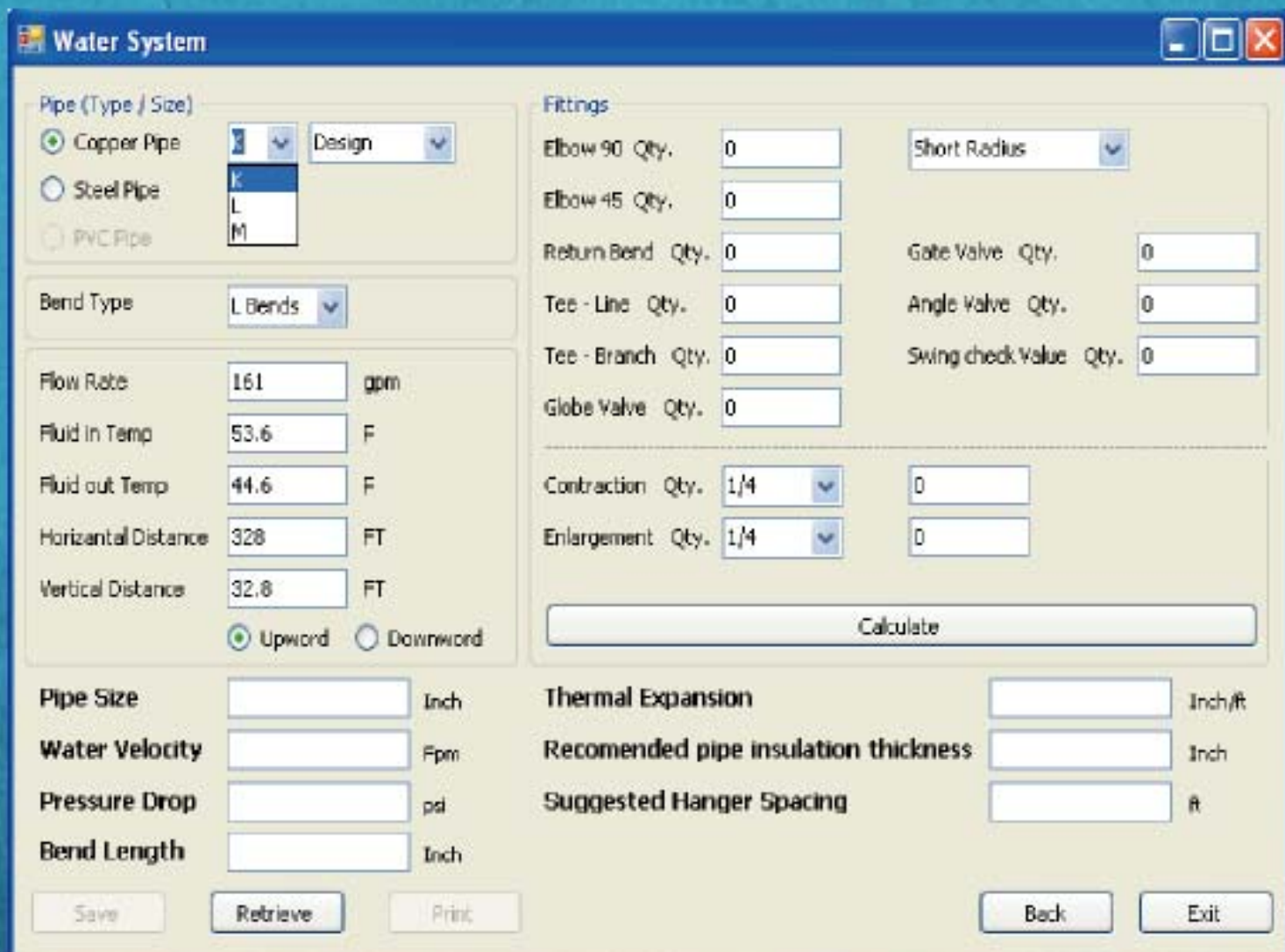
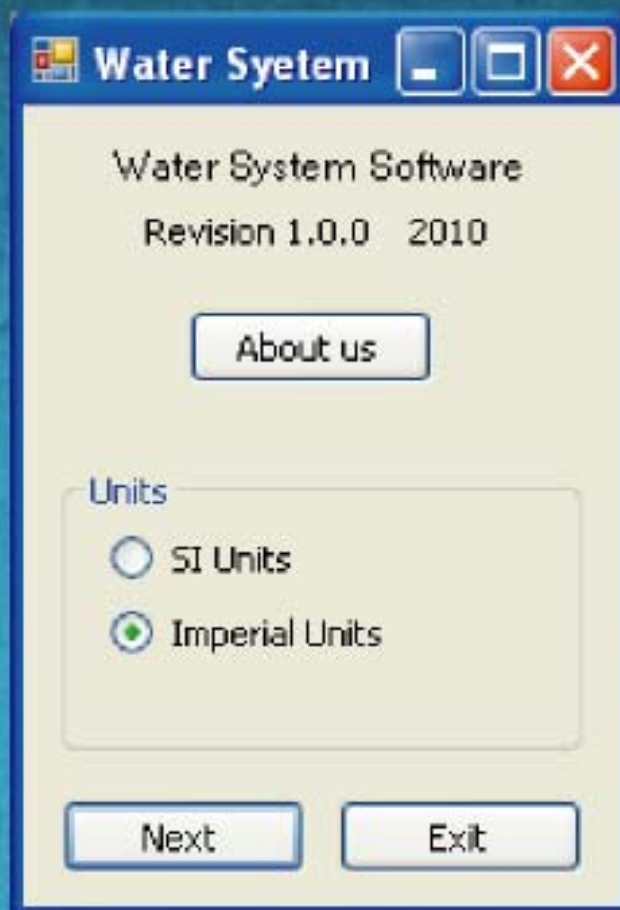
Water System Pipe Sizing Software

Water System Pipe Sizing Software

Water System Pipe Sizing Software is done for engineers (Design, consultant, & contractor), it has all fittings type may required by the user with professional & complete technical report,

Input data:

- SI or Imperial unit measurements.**
- Fluid temp.**
- Bend Types (L & Z)**
- Copper pipe type with K, L or M.**
- Steel pipe with schedule 40 & 80.**
- Lines length (horizontal, vertical upward or downward).**
- Elbows 90 quantity & type (Long radius or short radius).**
- Elbow 45 quantities.**
- U Bend 180.**
- Contraction & Enlargement quantity & type (1/4, 1/2 or 3/4).**
- Shut off valve quantity.**
- Tee line or branch quantity.**
- Globe valve quantity.**
- Gate valve quantity.**
- Angle valve quantity.**
- Swing check valve quantity.**
- Design or size selection (1/2" up to 20").**



Water System

Pipe (Type / Size)
 Copper Pipe K Design
 Steel Pipe
 PVC Pipe

Bend Type L Bends
 1/2
 5/8
 3/4
 1
 1 1/4
 1 1/2
 2

Flow Rate 161 gpm
 Fluid in Temp 53.6 F
 Fluid out Temp 44.6 F
 Horizontal Distance 328 FT
 Vertical Distance 32.8 FT
 Upward Downward

Pipe Size Inch
 Water Velocity Fpm
 Pressure Drop psi
 Bend Length Inch

Save Retrieve Print

Fittings
 Elbow 90 Qty. 0 Short Radius
 Elbow 45 Qty. 0
 Return Bend Qty. 0 Gate Valve Qty. 0
 Tee - Line Qty. 0 Angle Valve Qty. 0
 Tee - Branch Qty. 0 Swing check Valve Qty. 0
 Globe Valve Qty. 0

Contraction Qty. 1/4 0
 Enlargement Qty. 1/4 0

Calculate

Thermal Expansion Inch/ft
 Recommended pipe insulation thickness Inch
 Suggested Hanger Spacing ft

Back Exit

Water System

Pipe (Type / Size)
 Copper Pipe K Design
 Steel Pipe
 PVC Pipe

Bend Type Bends
 L Bends
 Z Bends

Flow Rate 161 gpm
 Fluid in Temp 53.6 F
 Fluid out Temp 44.6 F
 Horizontal Distance 328 FT
 Vertical Distance 32.8 FT
 Upward Downward

Pipe Size 2 1/2 Inch
 Water Velocity 665.67 Fpm
 Pressure Drop 15.0904 psi
 Bend Length 0.51 Inch

Save Retrieve Print

Fittings
 Elbow 90 Qty. 0 Short Radius
 Elbow 45 Qty. 0
 Return Bend Qty. 0 Gate Valve Qty. 0
 Tee - Line Qty. 0 Angle Valve Qty. 0
 Tee - Branch Qty. 0 Swing check Valve Qty. 0
 Globe Valve Qty. 0

Contraction Qty. 1/4 0
 Enlargement Qty. 1/4 0

Calculate

Thermal Expansion 0.03 Inch/ft
 Recommended pipe insulation thickness 1 Inch
 Suggested Hanger Spacing 8.85 ft

Back Exit

Water System

Pipe (Type / Size)
 Copper Pipe
 Steel Pipe 40 Design
 PVC Pipe

Bend Type: L Bends

Flow Rate: 100 gpm
 Fluid in Temp: 53.6 F
 Fluid out Temp: 44.6 F
 Horizontal Distance: 100 FT
 Vertical Distance: 5 FT
 Upward Downward

Pipe Size: 2 1/2 Inch
 Water Velocity: 665.67 Fpm
 Pressure Drop: 15.0904 psi
 Bend Length: 0.51 Inch

Fittings:
 Elbow 90 Qty. 3 Short Radius
 Elbow 45 Qty. 0
 Return Bend Qty. 0 Gate Valve Qty. 0
 Tee - Line Qty. 0 Angle Valve Qty. 0
 Tee - Branch Qty. 0 Swing check Valve Qty. 0
 Globe Valve Qty. 0

Contraction Qty. 1/4 0
 Enlargement Qty. 1/4 0

Calculate

Thermal Expansion: 0.03 Inch/ft
 Recommended pipe insulation thickness: 1 Inch
 Suggested Hanger Spacing: 8.65 ft

Save Retrieve Print Back Exit

Water System

Pipe (Type / Size)
 Copper Pipe
 Steel Pipe 40 Design
 PVC Pipe

Bend Type: L Bends

Flow Rate: 100 gpm
 Fluid in Temp: 53.6 F
 Fluid out Temp: 44.6 F
 Horizontal Distance: 100 FT
 Vertical Distance: 5 FT
 Upward Downward

Pipe Size: 2 Inch
 Water Velocity: 573.84 Fpm
 Pressure Drop: 6.4189 psi
 Bend Length: 0.38 Inch

Fittings:
 Elbow 90 Qty. 3 Short Radius
 Elbow 45 Qty. 0
 Return Bend Qty. 0 Gate Valve Qty. 0
 Tee - Line Qty. 0 Angle Valve Qty. 0
 Tee - Branch Qty. 0 Swing check Valve Qty. 0
 Globe Valve Qty. 0

Contraction Qty. 1/4 0
 Enlargement Qty. 1/4 0

Calculate

Thermal Expansion: 0.02 Inch/ft
 Recommended pipe insulation thickness: 1 Inch
 Suggested Hanger Spacing: 9.81 ft

Save Retrieve Print Back Exit

Water System

Pipe (Type / Size)
 Copper Pipe
 Steel Pipe 40 Design
 PVC Pipe

Bend Type: L Bends

Flow Rate: 100 gpm
 Fluid in Temp: 53.6 F
 Fluid out Temp: 44.6 F
 Horizontal Distance: 100 FT
 Vertical Distance: 5 FT
 Upward Downward

Pipe Size: 2 Inch
 Water Velocity: 573.84 Fpm
 Pressure Drop: 6.4189 psi
 Bend Length: 0.38 Inch

Buttons: Save, Retrieve, Print

Fittings
 Elbow 90 Qty: 3 Short Radius
 Elbow 45 Qty: 0 Long Radius
 Return Bend Qty: 0 Short Radius
 Tee-Line Qty: 0
 Tee-Branch Qty: 0
 Globe Valve Qty: 0
 Gate Valve Qty: 0
 Angle Valve Qty: 0
 Swing check Valve Qty: 0

Contraction Qty: 1/4 0
 Enlargement Qty: 1/4 0

Calculate

Thermal Expansion: 0.02 Inch/ft
 Recommended pipe insulation thickness: 1 Inch
 Suggested Hanger Spacing: 9.84 ft

Buttons: Back, Exit

Water System

Pipe (Type / Size)
 Copper Pipe
 Steel Pipe 40 Design
 PVC Pipe

Bend Type: L Bends

Flow Rate: 100 gpm
 Fluid in Temp: 53.6 F
 Fluid out Temp: 44.6 F
 Horizontal Distance: 100 FT
 Vertical Distance: 5 FT
 Upward Downward

Pipe Size: 2 Inch
 Water Velocity: 573.84 Fpm
 Pressure Drop: 6.4189 psi
 Bend Length: 0.38 Inch

Buttons: Save, Retrieve, Print

Fittings
 Elbow 90 Qty: 3 Short Radius
 Elbow 45 Qty: 0
 Return Bend Qty: 0
 Tee-Line Qty: 0
 Tee-Branch Qty: 0
 Globe Valve Qty: 0
 Gate Valve Qty: 0
 Angle Valve Qty: 0
 Swing check Valve Qty: 0

Contraction Qty: 1/4 0
 Enlargement Qty: 1/4 1/2 3/4 0

Calculate

Thermal Expansion: 0.02 Inch/ft
 Recommended pipe insulation thickness: 1 Inch
 Suggested Hanger Spacing: 9.84 ft

Buttons: Back, Exit

Output:

- **Water velocity & pressure drop for selected or required pipe size.**
- **Bend length.**
- **Thermal Expansion.**
- **Recommended pipe insulation thickness.**
- **Suggested hanger spacing.**

The image shows a software application window titled "Water System" with a "Save" dialog box overlaid on top. The "Save" dialog box contains the following fields:

- Project Name: Project
- Customer Name: Customer
- Date: 01 /01 /2010
- Remarks: Notes

The "Save" button is visible at the bottom of the dialog box.

The "Water System" application window displays the following input and output data:

Input Parameters:

- Pipe (Type / Size): Steel Pipe, 40
- Bend Type: L Bends
- Flow Rate: 100
- Fluid In Temp: 53.6
- Fluid out Temp: 44.6
- Horizontal Distance: 100 FT
- Vertical Distance: 5 FT
- Upword / Downword: Upword

Output Results:

- Pipe Size: 2 Inch
- Water Velocity: 573.84 Fpm
- Pressure Drop: 6.4189 psi
- Bend Length: 0.38 Inch
- Thermal Expansion: 0.02 Inch/ft
- Recommended pipe insulation thickness: 1 Inch
- Suggested Hanger Spacing: 9.84 ft

Buttons at the bottom of the application window include Save, Retrieve, Print, Back, and Exit.


ProjectName	CustomerName	Date	Remarks
Project2	Customer2	1/1/2010	Notes2
Project4	Customer4	1/1/2010	Notes4
Project	Customer	1/1/2010	Notes
zzz	zzz	1/1/2010	zzzz
NoName	Unknown	1/1/2010	note

Bend Type: **L Bends**
 Flow Rate: 100 gpm
 Fluid in Temp: 83.6 F
 Fluid out Temp: 44.6 F
 Horizontal Distance: 100 FT
 Vertical Distance: 5 FT
 Upward Downward
 Pipe Size: 2 Inch
 Water Velocity: 573.84 fpm
 Pressure Drop: 6.4189 psi
 Bend Length: 0.39 Inch

Return Bend Qty: 0
 Tee-Line Qty: 0
 Tee-Branch Qty: 0
 Globe Valve Qty: 0
 Contraction Qty: 1/4
 Enlargement Qty: 1/4

Gals Valve Qty: 0
 Angle Valve Qty: 0
 Swing check Valve Qty: 0

Thermal Expansion: 0.02 Inch/ft
 Recommended pipe insulation thickness: 1 Inch
 Suggested Hanger Spacing: 9.84 ft



Project Name:	Project		
Customer Name:	Customer		
Date:	1/1/2010 12:00:00PM		
Remarks:	Notes		

Measurement Units:	IMP	Pipe Type:	Steel40	Pipe Size:	2 Inch
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Inputs

Flow Rate:	100.00 gpm	Fluid in:	83.60 F
Horizontal Distance:	100.00 Ft	Fluid out:	44.60 F
Vertical Distance:	5.00 Ft	UP/DOWN:	UPWARD

Elbow90 Qty: 2 Type: Short Radius
 Elbow45 Qty: 0
 Return Bend Qty: 0
 Tee-Line Qty: 0
 Tee-Branch Qty: 0
 Contraction Qty: 0 Size: 1/4
 Enlargement Qty: 0 Size: 1/4
 Globe Valve Qty: 0
 Gals Valve Qty: 0
 Angle Valve Qty: 0
 Swing check Qty: 0

Outputs

Water Velocity:	573.84 fpm
Pressure Drop:	6.42 psi
Recommended pipe insulation thickness:	1.00 inch
Suggested Hanger Spacing:	9.84 ft
Thermal Expansion:	0.02 Inch/ft



Bends Type: L Bends Bends Length: 0.39 Inch

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Summary:

Selection copper pipe types K, L or M.

Selection steel pipe types 40 & 80.

Exact water velocity & pressure drop.

Bends length with sketch drawing as clarification.

Thermal expansion at selected fluid temp.

Recommended pipe insulations thickness.

Suggested hanger spacing for fixing lines.

Long & short radius fittings.

Design bottom with recommended size.

Many fittings type availability.

User can control & study the affect of all variables which will affect on the pipe sizing.

User can use easily his preferred unit measurement SI or Imperial.

All above data are extracted with professional technical report.

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