

Roughness Group

The Roughness Group tab allows you to specify and assign pipe groups for determining pipe roughness coefficients during a calibration simulation. Correlating pipe roughness coefficients between a hydraulic model and actual field conditions is the most frequently used methodology for model calibration. To use this tab, merely assign similar pipes (e.g., PVC constructed between 1970 and 1980) to specific groups in the Pipe Information database. Once these groups are assigned in the pipe group database field, specify minimum and maximum roughness ranges as well as an incremental level to correlate pipe roughness coefficients to actual field conditions.

Calibrator - Steady State Mode

Mode Run Help

Roughness Group Demand Group Pipe Status Junction Pressure Pipe Flow Run Run Summary Export Results

Pipe Group Database Field: PRES_ZONE New... DB Edit...

Active Group: #1

	Min	Max	Levels	Result	Pipe IDs
1	50.00000	120.00000	10		10,100,102,...
2	50.00000	120.00000	10		54,56,58,...
3	50.00000	120.00000	10		
4	50.00000	120.00000	10		
5	50.00000	120.00000	10		
6	50.00000	120.00000	10		
7	50.00000	120.00000	10		
8	50.00000	120.00000	10		
9	50.00000	120.00000	10		
10	50.00000	120.00000	10		
11	50.00000	120.00000	10		
12	50.00000	120.00000	10		
13	50.00000	120.00000	10		
14	50.00000	120.00000	10		
15	50.00000	120.00000	10		
16	50.00000	120.00000	10		

Refresh IDs Color Map Insert (+) Pipes Individual Element

Clear IDs... Reset Map Remove (-) Pipes

Calibrator
Version: 0.00
> Retrieving associated element IDs ... 50 groups processed.

Main Menu

Mode Run Help

Mode - Choose a mode (Steady State, Fire Flow, or Extended Period) for Calibrator.

Run - Go to **Run** to **Start** and **Stop** the trial. You can also choose **Options...** to view the Calibration Options dialog box:

Calibration Options ✕

	Measurement Unit	Weighting Factor	Evaluation Threshold (%)
Pressure :	Psi	1	5
Level/Head :	Feet	1	5
Flow :	Gallon / Minute	1	5

Termination Criteria

Fitness Threshold (%) :	1	Maximum Trials :	50000
Least Fitness Improvement (%) :	0.1		
Least Improvement Generation :	100	Advanced GA Options ...	

Convergence Method (Fitness Measurement) :

- Type #1 : AVERAGE of the absolute values of $w(1 - P_{sim}/P_{obs})^2$
- Type #2 : AVERAGE of the absolute values of $w(1 - P_{sim}/P_{obs})$
- Type #3 : MAXIMUM of the absolute values of $w(1 - P_{sim}/P_{obs})$

Calibration Time : 00:00 hrs OK Cancel

Help - Click to go to **Contents**, **Index**, or **About Calibrator** to find more information on Calibrator.

Group Database Field - This value selects the Pipe Group Database Field from within the Pipe Information data table that will store the pipe group number for each referenced pipe.

New - This button is used to add a new field to the project's Pipe Information data table that will assign the pipe group number to the individual pipe IDs.

New Pipe Group Database Field ✕

Field Title: OK

Specify the title of the new data field that will be used to store the associated roughness group number of junction

DB Edit - This button opens the Database Editor and displays the current project's Pipe Information table.

* FUTURE1 *	ID (Char)	Demand 1 (gpm)	Pattern 1 (Char)	Demand 2 (gpm)	Pattern 2 (Char)
<input type="checkbox"/>	1	0.00	1		
<input type="checkbox"/>	11	14.00	1		
<input type="checkbox"/>	13	14.00	1		
<input type="checkbox"/>	15	25.20	1		
<input type="checkbox"/>	17	56.00	1		
<input type="checkbox"/>	19	84.00	1		
<input type="checkbox"/>	21	14.00	1		
<input type="checkbox"/>	23	14.00	1		

Active Group #1

Minimum Roughness

This value represents the minimum roughness that can be assigned to a specified pipe group during the optimization.

Maximum Roughness

This value represents the maximum roughness that can be assigned to a specified pipe group during the optimization.

Levels

This field represents number of times the roughness might change during the optimization.

Result

This value represents the optimized roughness that will be assigned to the pipe group upon exporting the optimized data.

Pipe IDs

This category lists each pipe ID that belongs to a particular roughness group.

Clear IDs ...

Clear IDs - This button will remove each ID from the current group dialog box.

Color Map

Color Map

This button will color code the map based on the color and group assignments given to each element.

Insert (+) Pipes

Insert Pipes

This button allows you to input an element via one of the three following processes.

Refresh IDs

Refresh IDs

This button will update the IDs in the Calibrator dialog box according to the current data in the database.

Reset Map

Reset Map

This button will reset the map to its default colors.

Remove (-) Pipes

Remove Pipes

This button allows you to remove an element via one of the three following processes: Individual Element, Elements in Selection, and Element IDs.

