

## GFX Performance

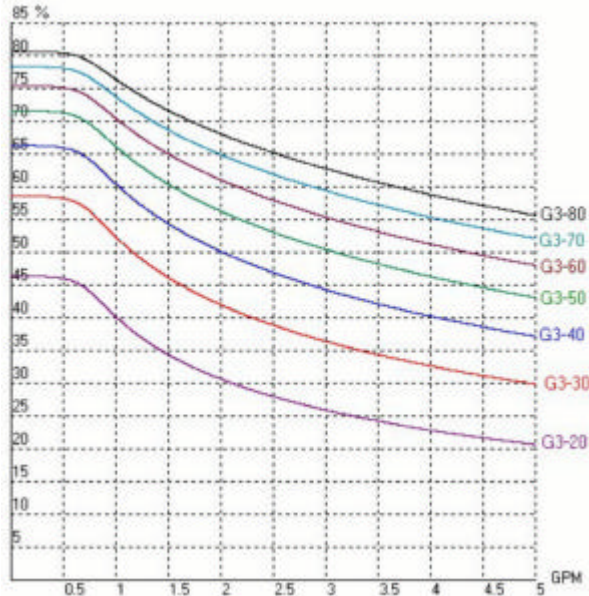


Fig. 1(a) DHR Efficiency (%) vs. Flow Rate (GPM) for 3" GFX models from 20" to 80" long (G3-20 to G3-80)

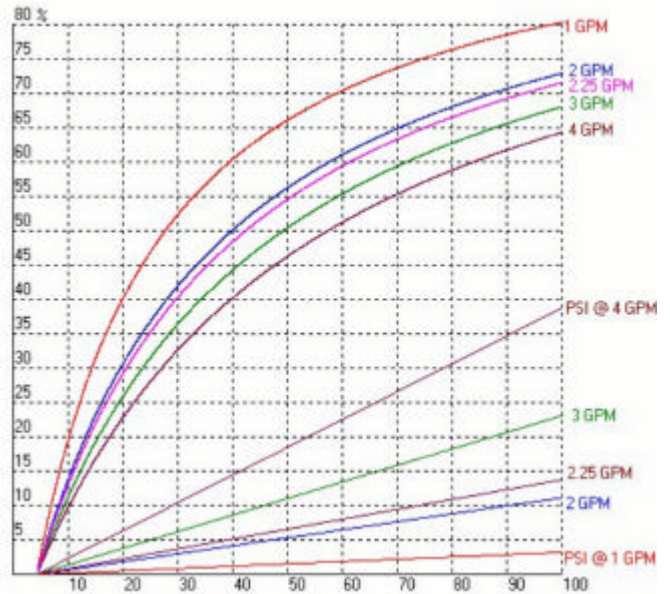


Figure 1(b) Equal-Flow efficiency (%) & coil pressure drop (PSI) vs. drainpipe length (inches) for 3" GFX models.

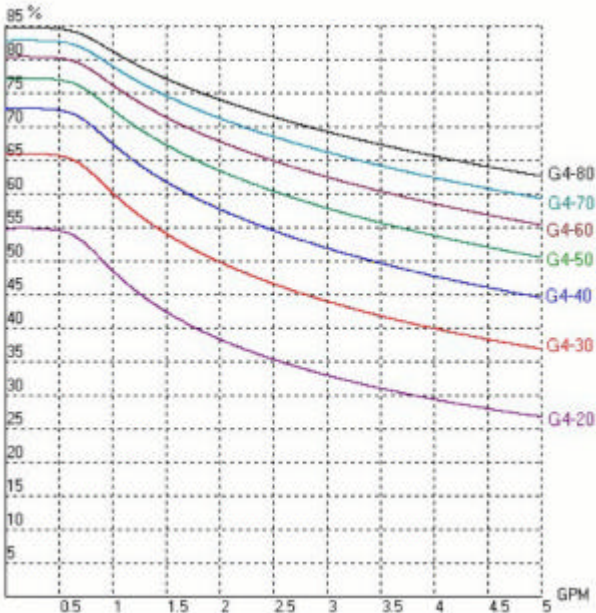


Fig. 2(a) DHR Efficiency (%) vs. Flow Rate (GPM) for 4" GFX models from 20" to 80" long (G4-20 to G4-80)

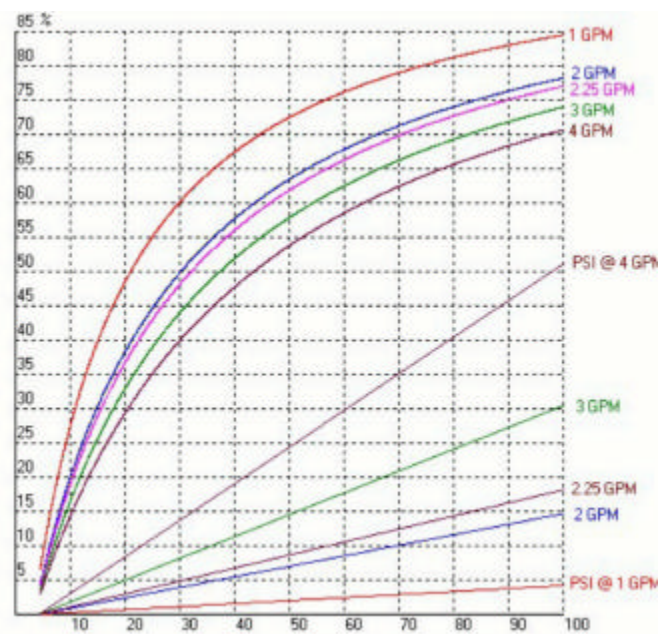
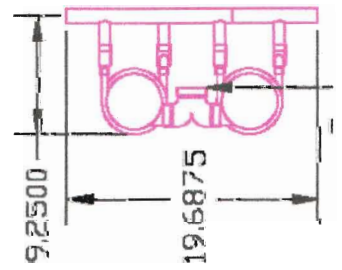
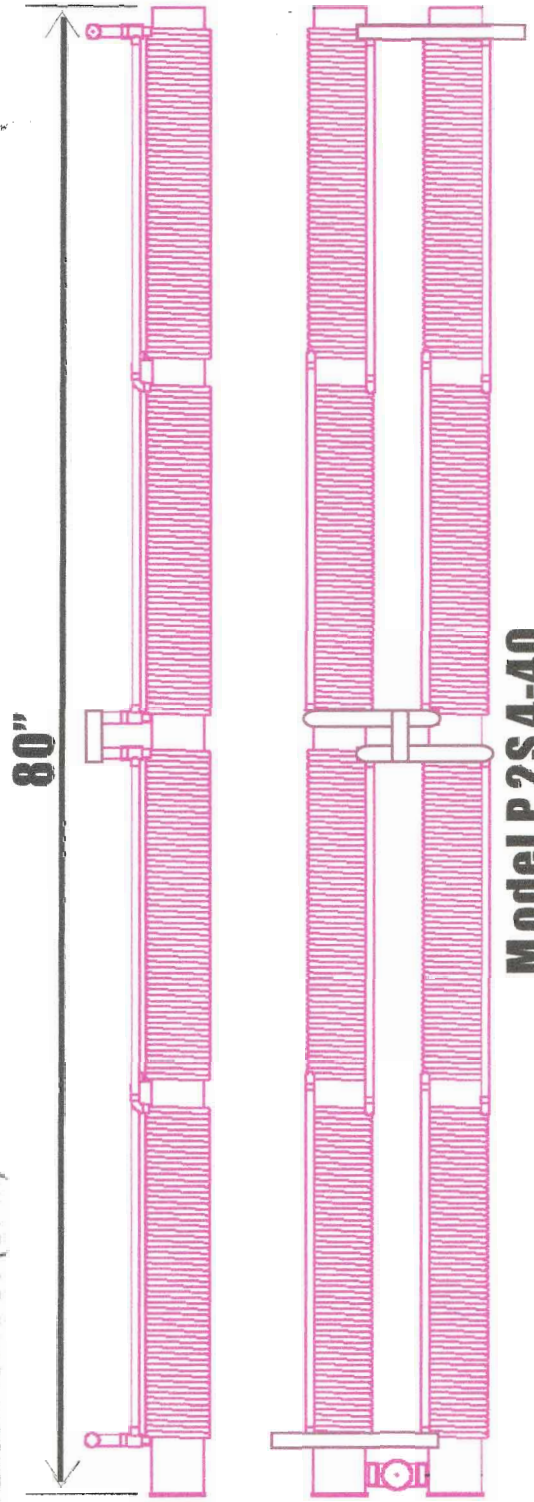
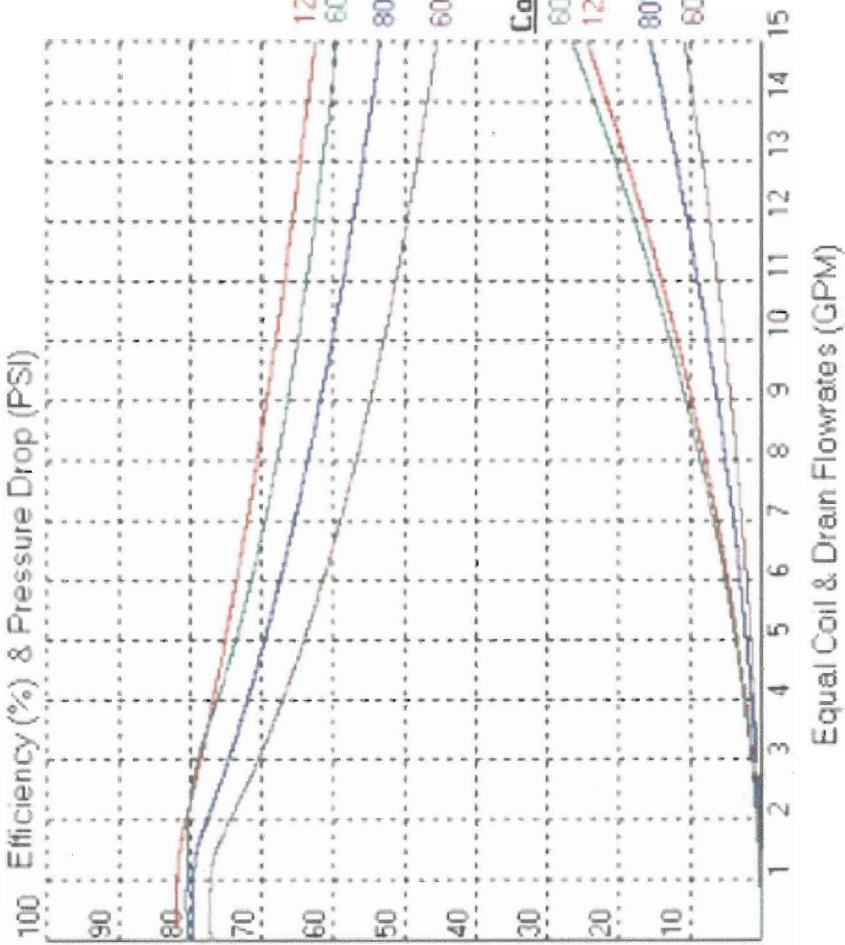


Figure 2(b) Equal-Flow efficiency (%) & coil pressure drop (PSI) vs. drainpipe length (inches) for 4" GFX models.





# Canadian-Knockoff Comparisons & Consumer Frauds

Application: 15 GPM Residential Hydro-massage Shower or Commercial Gang Shower

## Safety Issue REI Director François Michel Concealed

Three Canadian reports dated 3/24/06, 6/29/07 & 4/13/09 by NRCAN and Waterloo University failed to advise that Power-Pipes are not approved for potable water as noted in this 6/21/07 comment: " *Powerpipe is made with recycled copper from China. The company makes false claims. I purchased 4 units from power-pipe and they were recalled due to lead in the braze. Two of the replaced units were leaking at the joint and 2 others were clogged with metal shavings in the fresh water feed. Highly not recommended...* " (Quote from one of several such comments @ [www.treehugger.com/files/2006/06/the\\_powerpipe\\_r.php](http://www.treehugger.com/files/2006/06/the_powerpipe_r.php))

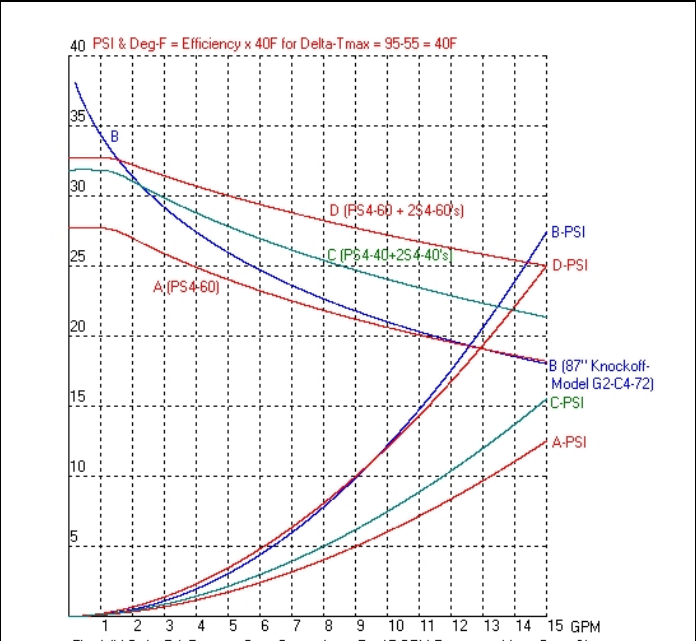
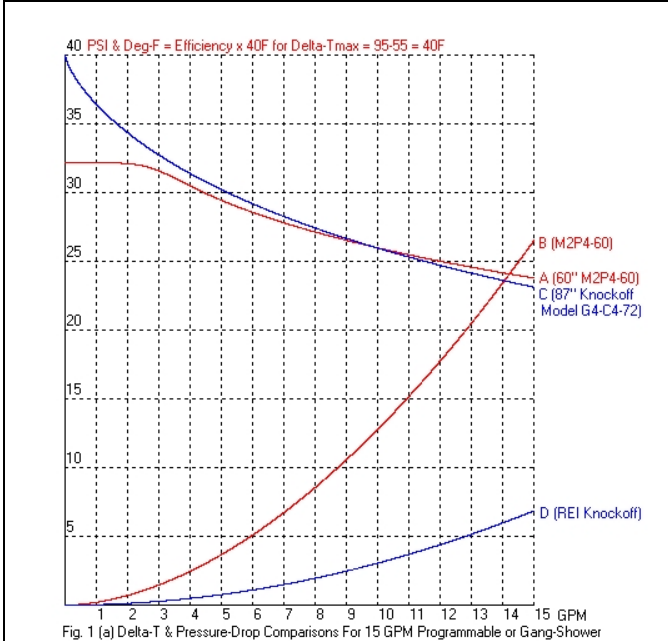


Fig. 1(a) Coil temperature rise & pressure drop based on refined U.S. DOE computer models. Knockoff performance is based on erroneous equations from a 2007 NRCAN Report<sup>1</sup> inserted into Footnote #2.

### Notes

- Graph A → Delta-T for 60" GFX Model M2P4-60 from refined DOE computer models;
- B → Pressure drop corresponding to A;
- C → Erroneous Delta-T curve for 87" Knockoff Model G4-C4-72;
- D → Erroneous Pressure Drop corresponding to C.

Fig. 1(b) Similar performance comparisons for 60" long GFX Models P4-60 & PS4-60 and 87" Knockoff model #G2-C4-72.

### Notes

- Graph A → Delta-T & Pressure Drop of 60" GFX Model PS4-60;
- B → Erroneous Delta-T & Pressure Drop of 87" Knockoff Model G2-C4-72;
- C → 80" tall system made by setting a PS4-40 on two S4-40's with coils & drains connected in series;
- D → 120" version of C, using a PS4-60 & two S4-60's.

<sup>1</sup> "Drain Water Heat Recovery Characterization and Modeling", by: Charles Zaloum, Maxime Lafrance, John Gusdorf, Sustainable Buildings and Communities, Natural Resources Canada [NRCAN], Ottawa, June 29, 2007. See complete 2007 & 2006 reports @ [www.gfxtechnology.com/NRCAN-6\\_29\\_07.pdf](http://www.gfxtechnology.com/NRCAN-6_29_07.pdf) & [www.gfxtechnology.com/NRCAN-3\\_24\\_06.pdf](http://www.gfxtechnology.com/NRCAN-3_24_06.pdf) -- which were relied upon in the 4/13/09 Report by Waterloo University in furtherance of REI's & NRCAN's consumer frauds.

### NRCAN's Erroneous NTU Equations; Table 2, pg. 19, 5<sup>th</sup> column

- GFX G3-40  $y=4.0168x^{-0.6678}$
- GFX S3-60  $y=4.4495x^{-0.6711}$
- Retherm C3-40  $y=3.3371x^{-0.6817}$
- Retherm S3-60  $y=3.1314x^{-0.713}$
- Power Pipe C3-36  $y=3.0514x^{-0.7401}$
- Power Pipe R3-60  $y=5.0866x^{-0.6601}$
- Watercycles 36  $y=0.98x^{-0.3465}$
- Watercycles 60  $y=3.1314x^{-0.713}$

### NRCAN's Erroneous Pressure Drop Equations; Table 4, pg. 23

- Manufacturer Model & Pressure Drop Equation
- Power Pipe R3-60  $y = 0.021116 x^2$
- Power Pipe R3-36  $y = 0.012256 x^2$
- GFX G3-60  $y = 0.114931 x^2$  (Should be  $x^{1.8}$  not  $x^2$ )
- GFX G3-40  $y = 0.064957 x^2$  (Should be  $x^{1.8}$  not  $x^2$ )
- Retherm C3-40  $y = 0.055603 x^2$
- Retherm S3-60  $y = 0.016998 x^2$
- Watercycles 60  $y = 0.09297 x^2$
- Watercycles 36  $y = 0.059983 x^2$