



# **ENEFLOW<sup>®</sup>**

*Fluid Dynamic Power Cells*

*Environmentally Sensible,  
Commercially Proven  
Solutions to Fluid  
Treatment*

[www.eneflow.com](http://www.eneflow.com)

# The cost of hard water...



When hard water is subjected to fluid dynamic changes (temperature, pressure, velocity), dissolved minerals precipitate out of solution and migrate to the area of lowest fluid velocity - typically the walls (interior surfaces) of pipes and equipment,

restricting the fluid flow. This scale also acts as an insulator, dramatically reducing heat transfer efficiency in heat exchanger applications, resulting in increased energy costs.



## The high cost of 'scale' (typical energy losses)

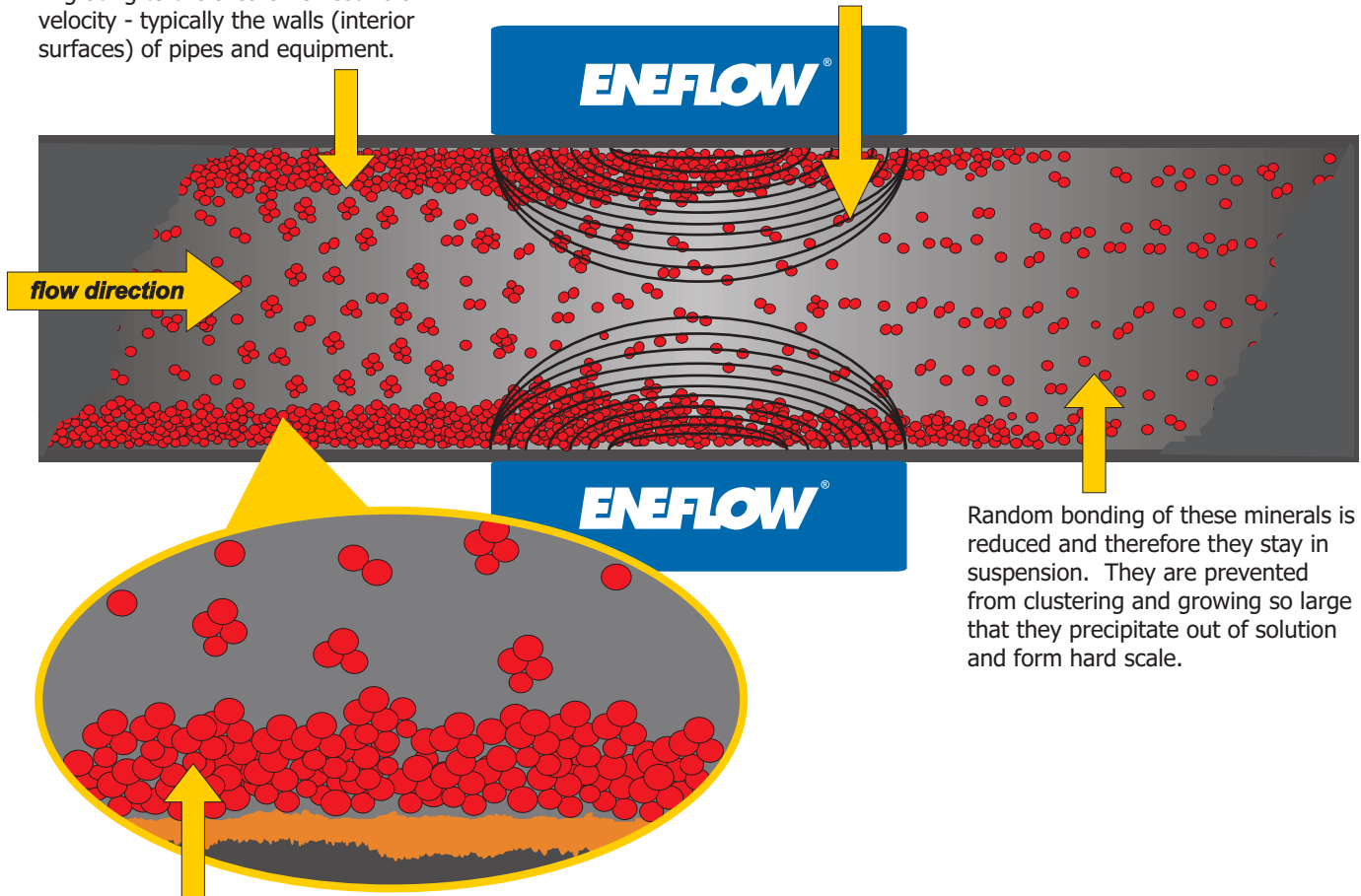
The table shows typical loss of efficiency proportional to varying thicknesses of scale.

scale thickness	efficiency loss	coal wasted per ton	oil wasted per 1000 gal	gas wasted per 1000 ft. <sup>3</sup>
1/64 in.	4%	80 lb.	40 gal.	40 ft. <sup>3</sup>
1/32 in.	7%	140 lb.	70 gal.	70 ft. <sup>3</sup>
1/16 in.	11%	220 lb.	110 gal.	110 ft. <sup>3</sup>
1/8 in.	18%	360 lb.	180 gal.	180 ft. <sup>3</sup>
3/16 in.	27%	540 lb.	270 gal.	270 ft. <sup>3</sup>
1/4 in.	38%	760 lb.	380 gal.	380 ft. <sup>3</sup>
3/8 in.	48%	960 lb.	480 gal.	480 ft. <sup>3</sup>
1/2 in.	60%	1200 lb.	600 gal.	600 ft. <sup>3</sup>
5/8 in.	74%	1480 lb.	740 gal.	740 ft. <sup>3</sup>
3/4 in.	90%	1800 lb.	900 gal.	900 ft. <sup>3</sup>

# How does **ENEFLOW**® work?

Scale forms when dissolved minerals cluster and precipitate out of solution, migrating to the area of lowest fluid velocity - typically the walls (interior surfaces) of pipes and equipment.

When a conductive fluid is subjected to ENEFLOW®'s unique multi-pole, multi-axial field, an electromotive force is induced in the fluid. This has an effect on suspended minerals like calcium and magnesium, effecting the manner in which they interact and crystalize.



Random bonding of these minerals is reduced and therefore they stay in suspension. They are prevented from clustering and growing so large that they precipitate out of solution and form hard scale.

Porous mineral scale can allow water to penetrate and be trapped, accelerating corrosion. In addition, microorganisms can be trapped under the scale where it cannot be washed away or effectively treated with biocides, resulting in Microbially Induced Corrosion (MIC).

**ENEFLOW® Fluid Dynamic Power Cells utilize a patented magnetic system to control or even eliminate scale buildup in all types of fluid flow systems.**

**The ENEFLOW® System also alleviates other problems associated with hard water, including improving the function of bactericidal agents like chlorine, and accelerating the diffusion of many other additives or water treatment chemicals.**



## Proven technology...



"[ENEFLOW®] Reduced the formation of scale in the hot-water storage tanks with an average of 34%...**The maximum reduction in scale formation was 70%**".

**The effectiveness of a magnetic physical water treatment device on scaling in domestic hot-water storage tanks**  
C. Smith, PP Coetzee & JP Meyer  
Rand Afrikaans University, South Africa

### The Economist

"Indeed, given the right combination of magnetism, temperature, acidity and water flow, **they found that the rate of scaling could be halved.**"

**Softening Water-Magic Realism**  
**The Economist**  
Vol. 338 Issue 7955, p74, 2p



### Cranfield UNIVERSITY

"The results from this study indicated that **magnetic treatment significantly influenced the deposition of calcium carbonate scale**, under the controlled physico-chemical conditions employed."

**Water Research-Magnetic treatment of calcium carbonate scale-effect of pH control**  
Simon A. Parsons  
School of Water Science  
Cranfield University



# Real world results...

## Chemical Company...

A major international chemical and synthetic fiber manufacturer solved their scale problems with ENEFLOW® Fluid Dynamic Power Cells. The installations have been carefully documented and monitored by plant

engineers to determine the effectiveness of the ENEFLOW® Systems. Mineral scale build-up was effectively eliminated from all fluid flow components in only ten short months, resulting in a more energy efficient operation.



**Before**

ENEFLOW® 5000's installed on the plant's cooling water system for its diesel generators eliminated scale problems in their pumps, before (left) and after (right).



**After**



**Before**

Valves in the cooling water lines covered with hard scale (left) until ENEFLOW® eliminated it completely (right).



**After**

## Power Plant...

Engineers at a coal fired power station had an ongoing problem with rock-hard calcium carbonate scale build-up in their ash slurry piping system. They wanted to see if the ENEFLOW® Power Cells would eliminate existing scale and control future scale build-up. The maintenance engineers were amazed with the results...



Hard calcium carbonate scale build-up is an ongoing maintenance problem, especially on valves as seen here.



ENEFLOW® Fluid Dynamic Power Cells being installed on one of the main (14 inch) ash slurry lines.



**Before**

One month after ENEFLOW® was installed, the hard white scale had turned yellowish and softened considerably.



**After**

After two months, ENEFLOW® had virtually eliminated the calcium carbonate scale build-up in the system.

## Tire Company...

These critical heat exchangers at a tire manufacturing plant were scaling up badly and had to be cleaned every few months. The results after just thirty days were "miraculous" according to the plant engineers! The photos speak for themselves.



**Before**



**After**

# Limitless applications...

## Leading U.S. Cruise Line Installs ENEFLOW® on Potable Water & Dishwasher Lines

"After applying ENEFLOW® Cells, the Food & Beverage manager of said vessel noticed, since the very beginning, ultimate decline in the formation of glass white spotting."

"Before ENEFLOW® Cells had been installed in the potable water lines there was a heavy formation of scale. After installation I can tell that the scale formation has ceased..."

"There is no doubt in my mind that ENEFLOW® Fluid Dynamic Power Cells are having an immediate and very obvious preventive effect on scale formation, prevention and scale removal..."

Deck & Engine Superintendent  
Major U.S. Cruise Line

## ENEFLOW® Has Been Shown to Eliminate Paraffin Build-Up in Oil Well Applications

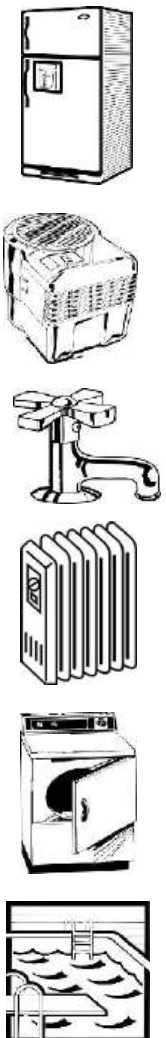
The ENEFLOW® Power Cells were installed on the two-inch line coming off the well head for approximately 60 days. Existing paraffin was removed and future paraffin build-up was prevented.



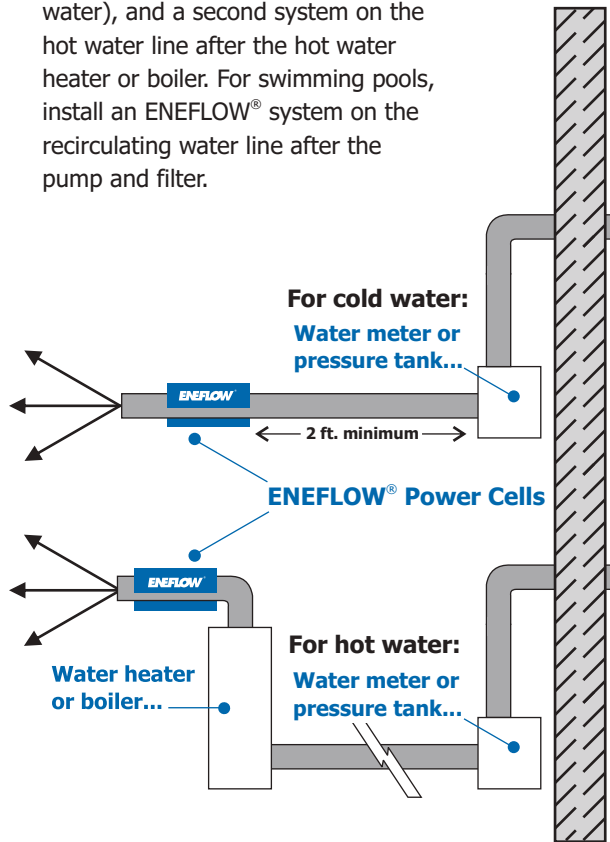
# Use **ENEFLOW**® at home...



- Control mineral scale build-up.
- Reduce staining from hard water minerals.
- Reduce soap & laundry detergent usage.
- Reduce chlorine usage in swimming pools.
- Conserve energy while reducing pollution.
- Produce a soft water effect without chemicals.
- Will not alter fluid chemistry.
- Easy installation - no plumbing or electrical connections required.
- Works on all types of pipe: plastic, copper, galvanized, etc.
- Commercially proven and maintenance free.
- 100% Environmentally safe.



For home use, install one ENEFLOW® system on the incoming cold water line at least two (2) feet after the water meter or pressure tank (if well water), and a second system on the hot water line after the hot water heater or boiler. For swimming pools, install an ENEFLOW® system on the recirculating water line after the pump and filter.



# Made in the U.S.A.

ENEFLOW® is the only magnetic fluid treatment system created and marketed by a full-scale magnet manufacturing company...



Our magnet design and production team has decades of experience in the industry, and our knowledge of magnetic systems for virtually any application is second to none.

Our USA based manufacturing facility is ISO/TS 16949:2002 certified, and produces magnets for some of the world's largest and most demanding companies.



**ISO/TS 16949**

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Your local ENEFLOW® Fluid Flow Systems Specialist