



**INDUSTRIES LIMITED**

## ***HVAC Tech Note #9 – October 2003***

### **Erosion in Piping Systems**

High water velocities can erode pipe, fittings and components, but it's not the water itself that does most of the damage. The following is from the 2001 ASHRAE Fundamentals Handbook, page 35.4:

*'Erosion in piping systems is caused by water bubbles, sand, or other solid matter impinging on the inner surface of the pipe. Generally, at velocities lower than 10 fps, erosion is not significant as long as there is no cavitation. When solid matter is entrained in the fluid at high velocities, erosion occurs rapidly, especially in bends.'*

To prevent damage from erosion, keep the fluid in closed systems clean and air-free. Eliminate cavitation in pumps and control valves by ensuring that maximum flow rates are limited to design values and that proper system pressurization is maintained. In other applications where it is not possible to completely eliminate the elements that cause erosion, e.g. domestic hot water recirculation, control the flow to keep velocities low and prevent premature failure of the pipe and fittings.

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