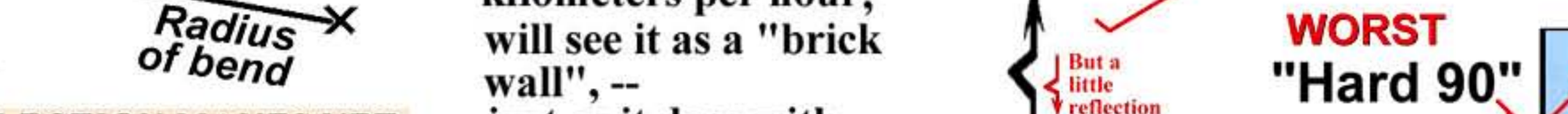
A. Shake a pipe, generate a pressure pulse. B. Turn a pulse instead of reflecting it.
C. Dissipate a transient, why increase the frequency.

The purpose of the analogies is not absolute definition, it is to assist in "visualising" (visualizing) the different phenomena.

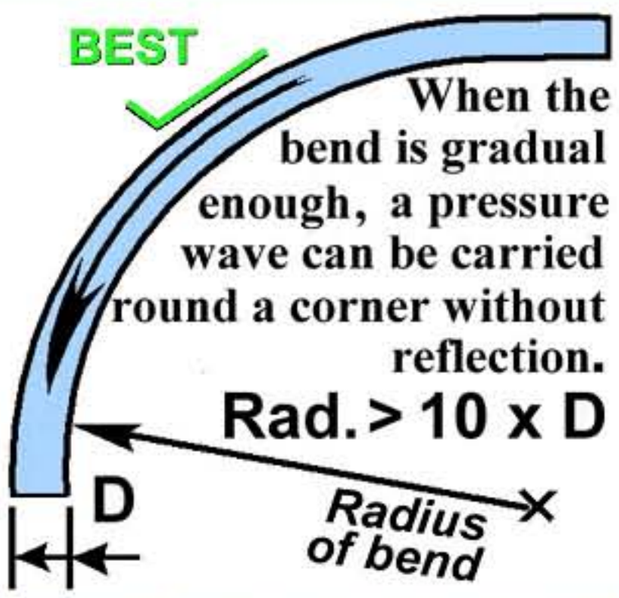
A.

Leave the end of the garden hose attached to a closed "tap" or faucet. Extend the hose uphill , and leave open but full of water. Hold the middle of the hose, then jerk it. Water spurts out. The jerk created pressure, if not, nothing would have come out. Similarly, shaking a pipe causes pressure pulsation in the liquid.



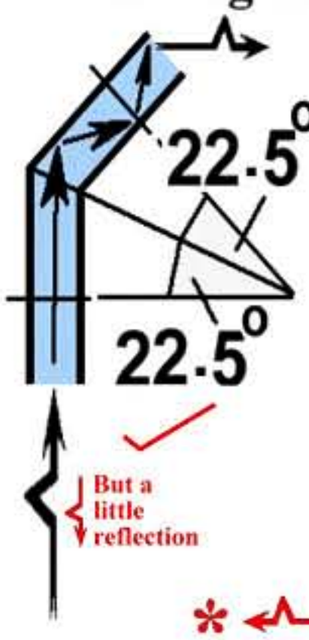
When the engine or motor attached to a pump, is not perfectly installed, the pipe attached to the pump will vibrate. This can be measured as liquid pressure pulsation. It will be significant when the shaking is along the axis of the pipe. THERE IS NO DIFFERENCE BETWEEN PUSHING LIQUID IN A PIPE, AND PULLING A A PIPE ALONG A COLUMN OF LIQUID, in terms of liquid pressure.

B.



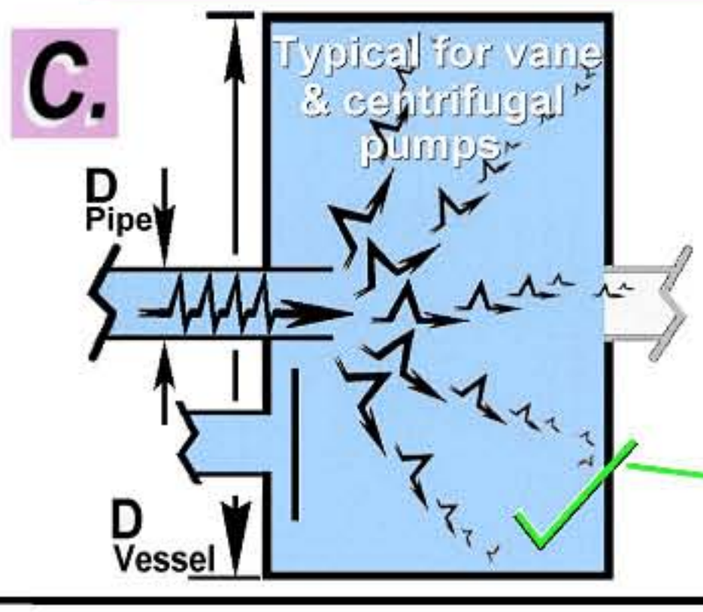
Whereas a long rad 90 will be better in terms of volume / mass flow, a pressure wave travelling over 5,000 kilometers per hour, will see it as a "brick wall", -- just as it does with "hard 90"

A 22.5 Degree + 22.5 Degree "Scarf Joint" , aka "fabricated 45" reflects some and transmits some of a pressure wave.



There are different stiffnesses for each of these direction change methods These stiffnesses impact the pipe mechanical vibration frequencies.

C.



Where Diam. of Vessel is 8 times Diam. of Pipe , high frequency pressure pulse transients will have died away before they can bounce off the the nearest point of reflection and find their way out into the rest of the system.

"High frequency transients"

This is "good" to the extent that it is NOT increasing the load on the pump, by imposing an orifice against pump delivery.

continued.

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LIQUID DYNAMICS INTERNATIONAL Inc.
Analysis, Diagnostics, Prediction by Software
Phone USA --910-270-2737 Color Fax --910-270-0320 UK (for EC) --44-161-442-6222 Color Fax --44-161-443-1486
Box 506 Hampstead NC 28443 www.liquid-dynamics.com Box 47, Stockport, SK3-0LH, UK

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