Problem description
Baum Pneumatics Diverter valve were analyzed under various inlet flow speed and outlet pressure contitions to:
- Reduce energy loss
- Minimize velocity drop across valve

On-center position was used for calculations.

Regular diverter valve design was compared with a modified design with flats and adjusted step.

Results
Results showed that the modified diveter valve will cause a smaller velocity drop in assembly due to lower energy loss level (Figure 1).

Results revealed a lower turbulent energy level (energy loss) (Figure 2) and a smaller vortex region with modified design (Figure 3).

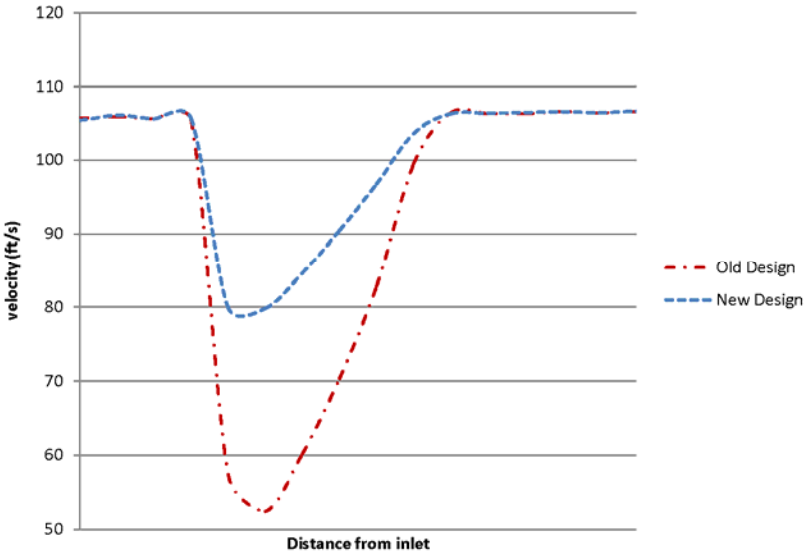
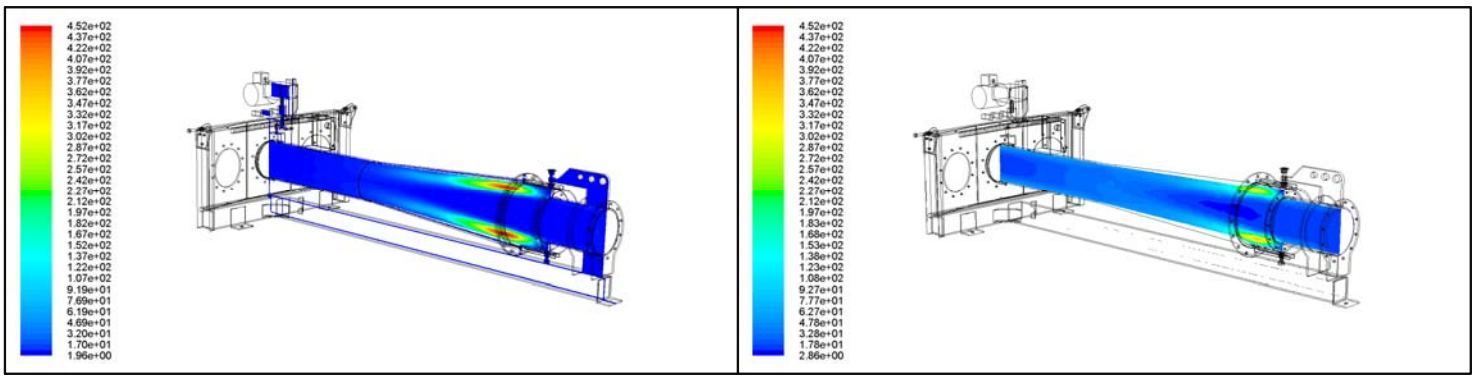


Figure 1. Velocity drop across valve.

T9,H9,C9,A9



Old design Modified design

Figure 2. Turbulent kinetic energy contours (K) (ft2/s2).
Lower energy level was achived in new design.

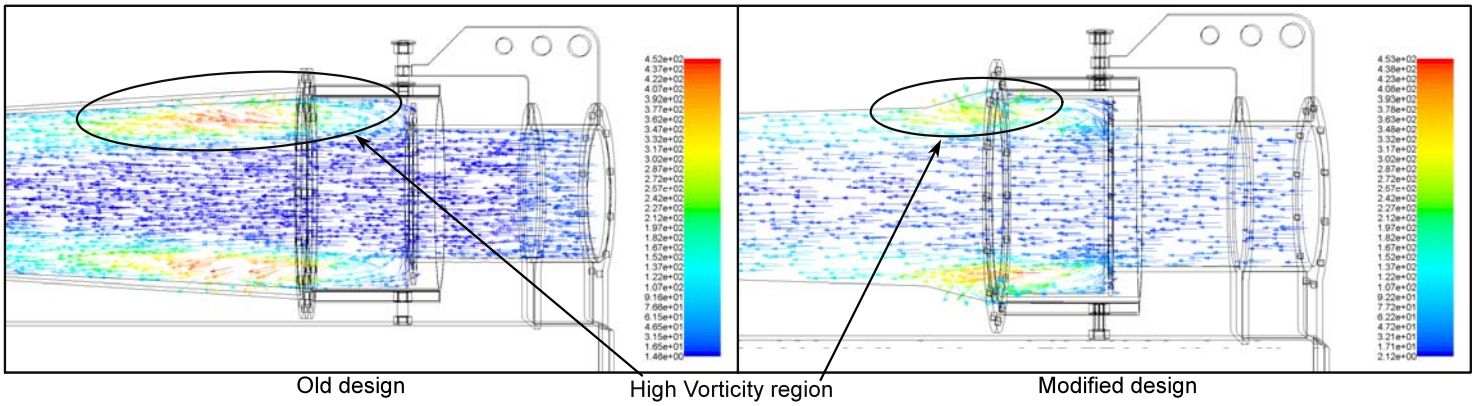


Figure 3. Flow vectors colored by turbulent kinetic energy (K) (ft2/s2).
Smaller vortex region was achieved in new design.

For Diverter dimnsions see A-3XXX