



The Right Connection®

## CASE STUDY:

# Pump Cavitation Got You Down? One-Piece Suction Manifolds

Dixon innovation was demonstrated when developing the one-piece suction manifold that feeds slurry into high pressure pumps. The manifold design was the result of hydraulic fracturing companies experiencing pump cavitation due to proppant dropout causing destructive flow restrictions.

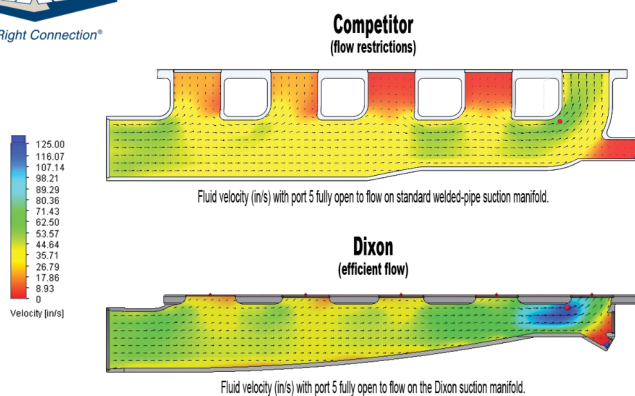
End user input is invaluable, and the feedback has helped guide our direction on an economical solution.

## Dixon Solution

The Dixon design combines unique flow geometry with one-piece iron manufacturing technology to increase flow, and eliminate 7-18 leak-prone weld seams. The 3-port and 5-port suction manifolds have been lab and field tested, and the flow profile simulation demonstrates the differences between the welded pipe and Dixon manifolds.



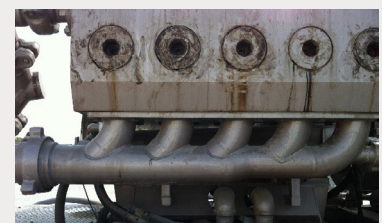
### Flow Profile



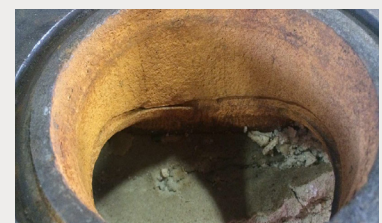
## End-User Feedback

- Sand dropout causes flow restrictions, and pump cavitation is common.
- Traditional welded pipe manifolds create turbulence causing excessive abrasion on internal walls.
- Leaks along the weld seams are a regular nuisance.
- Acidizing well treatments attack weld seams.
- CO2 transfers at -30°F temperatures, and can cause performance issues.
- Repairs consist of re-welding and/or using rubber washers with screws.

Within the fracturing operation there are multiple scenarios where down-time and pump failure can be avoided.



• Figure 1 shows a traditional welded pipe manifold.



• Figure 2 exhibits sand dropout and internal weld erosion.

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