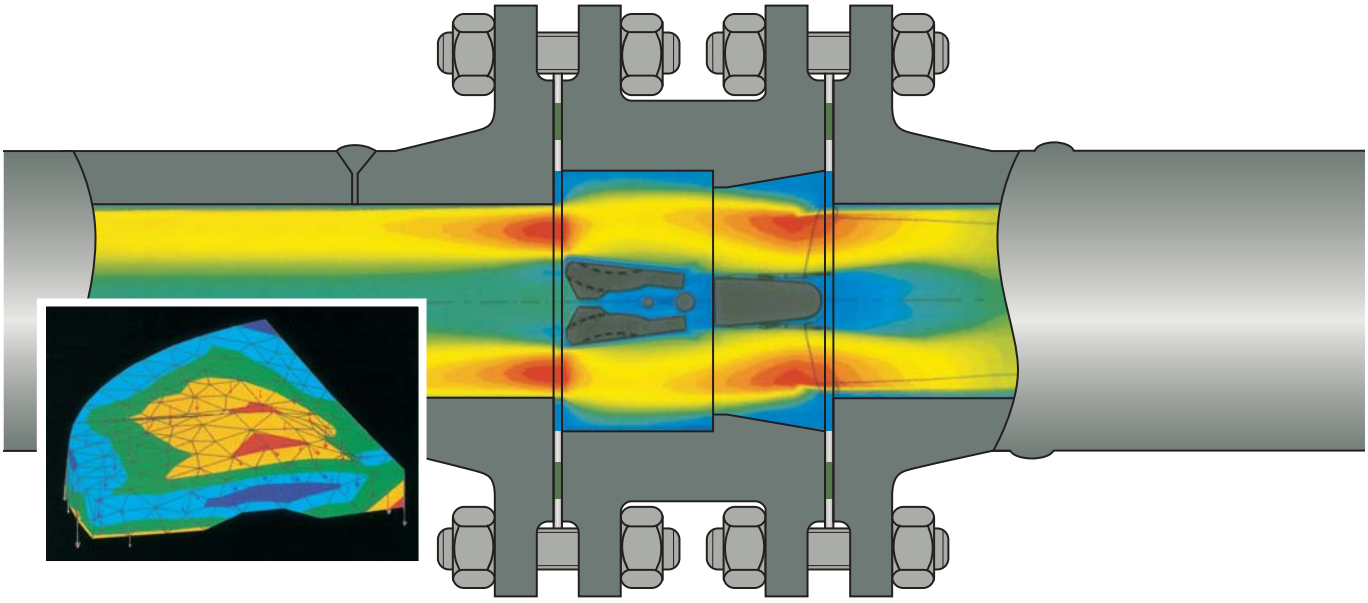
PLATE DESIGN & ATTRIBUTES



By taking advantage of recent advances in computer technology and combining the results of *FLUENT flow modelling and †ANSYS Finite Element Stress Analysis, Goodwin has been able to design a Dual Plate Wafer Check Valve that has a higher performance than had previously been developed.

The Goodwin Valve has a significantly lower pressure drop on high pressure valves than has been achieved before. This improvement has been secured by using a unique plate (Pat) which exhibits differential stiffness, while other areas remain rigid.

The success of this plate design has permitted our designers to maintain almost the same “D” throat area across the pressure range for any given size of valve. For example, when comparing throat areas with those of another leading manufacturer, the Goodwin valve was found to have areas as much as 25% greater giving the obvious benefits of increased flow and lower pressure drop. The benefit of the increased flow area is further enhanced on the outlet side of the valve where the Goodwin slim plates in the fully open position offer dramatically less restriction to flow as depicted in the adjacent photographs.

The Goodwin plate, by virtue of its design, has a lower mass; typically a Goodwin ANSI 2500lb plate weighs less than other suppliers ANSI 300lb plates. This factor decreases both the inertia of the plates and the friction at the plates hinges providing an opportunity to improve the valve response time.

The valve has been tested at Delft Hydraulics Test Laboratories in The Netherlands and independent comparative tests using the Goodwin valve and a valve from another major international Dual Plate Check Valve manufacturer were carried out. The results show that the Goodwin design has a significantly lower pressure drop for a given flow and valve size than the other manufacturer’s valve.

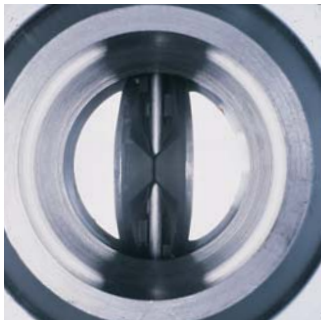
There are vast benefits for users of Goodwin’s design because of its reduction in the operating costs normally associated with energy losses and reduced output in high velocity oil and gas flow line production facilities. The Goodwin valve opens up opportunities for operating companies to develop “best value” solutions for their cost reduction programs.

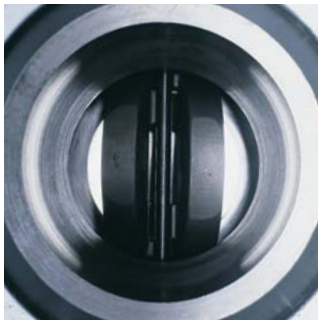
* FLUENT is a registered trademark of Fluent Inc., USA.
† ANSYS is a registered trademark of Swanson Analysis Systems.
(Pat) = Patented Internationally.

Flow area as viewed from bar end.

▲ Goodwin
▼ 6" ANSI 1500/7 1/16" API 5000

▲ Major Competitor
▼ 6" ANSI 1500





Flow area as viewed through flange on outlet side of valve.