

Case Study: Clair Ridge Project

SHETLAND ISLANDS - UNITED KINGDOM

GOODWIN[®]
INTERNATIONAL LTD

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Goodwin International is a world leader for its design, manufacture and supply of dual plate and axial flow check valves for the world Hydrocarbon, Energy and Process Industries and are globally approved by major contractors and end users

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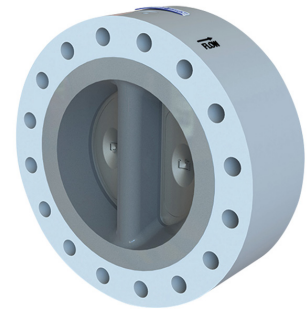
The Clair Oil Field was discovered in 1977 and is located 75km west of the Shetland Islands in the North Sea.

Goodwin International was awarded a contract to manufacture and supply dual plate and axial flow check valves for this prestigious platform. The contractor for the project was Amec Foster Wheeler and the end user was BP. The dual plate valve styles supplied were solid lug, double flanged and retainerless reduced bore hub end valves ranging between Class 150 and Class 2500.

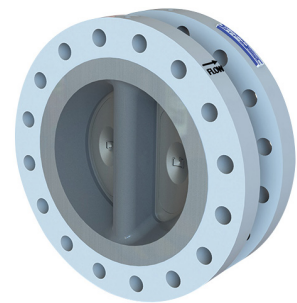
Goodwin also supplied a range of ZBF style axial flow check valves for the project. This valve is a solid disc style and was modified according to the process conditions at site such that it could minimise the pressure drop across and maximise the flow through the valve.

Goodwin worked closely with the project engineers who provided us with process information and site service conditions. Pressure calculations were conducted based on the information provided and the findings were discussed with the project. Various spring torques were used (i.e. low or mini torque) to ensure that the valve plates fully opened in the given flow conditions.

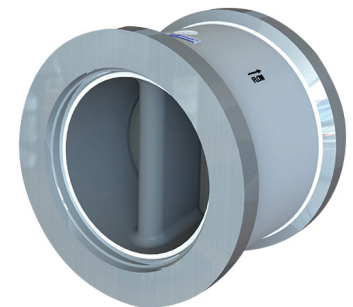
Materials for the project ranged from modified low temperature carbon steel, cast duplex (ASTM A995 4A) and super duplex (ASTM A995 6A) as well as hastalloy. These were cast by our sister company Goodwin Steel Castings (GSC) to meet the stringent requirements of the material datasheets. The major components were supplied with 3.2 certification.



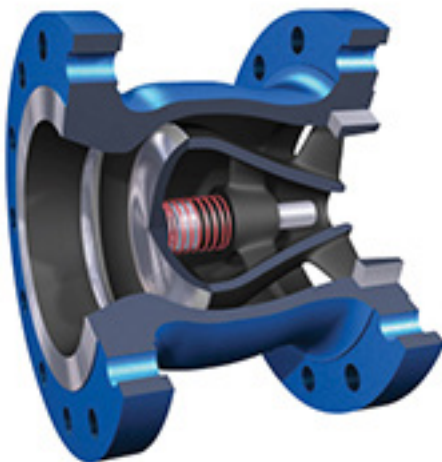
Solid Lug Design



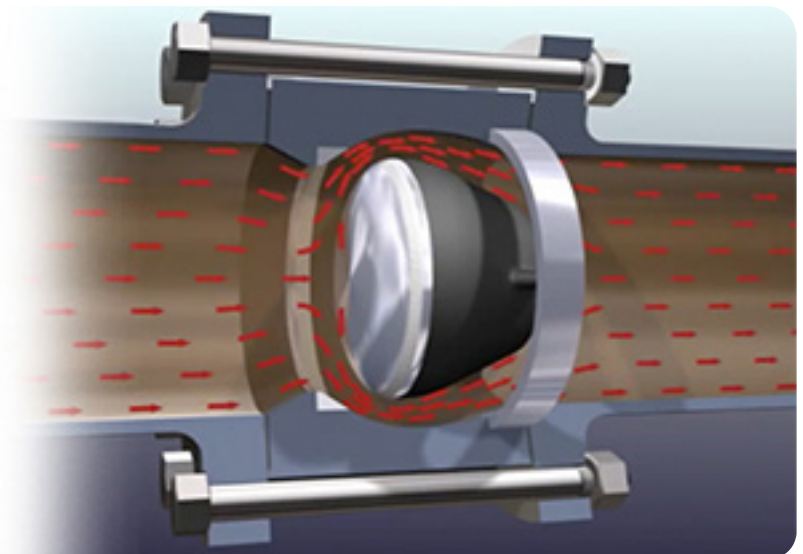
Double Flanged Design



Hub-End Design



ZBF Style Axial Flow Check Design



Axial Flow Diagram

Goodwin Steel Castings were successfully audited by BP and is now an approved BP foundry. By using GSC to cast the raw material for the majority of the contract, it meant that we were able to maintain complete control over the whole project from placing our sub orders to the complete finished product.

In house, Goodwin has the capability to conduct the various types of Non Destructive Testing (NDT) such as Magnetic Particle inspection (MPI), Dye Penetrant examination (DPI) and Positive Material Identification (PMI). The level of NDT for the dual plate and the axial valves for the Clair Ridge contract was determined by the quality level within the BP/ Amec specifications which we have an excellent understanding of.

The NDT ranged from a visual check of components to 100% full radiography coverage of the valve body. Hydrostatic Pressure testing was conducted in accordance with Industry standard (API 598) procedure with stringent leakage rates. The project requested leakage rates of 1.5cc/min/inch which equates to half of the industry standard requirement for check valves and this was easily achieved by Goodwin.



Goodwin International offers a unique in-house turnkey solution