

Process & Control

APPLICATIONS | PRODUCTS | SOLUTIONS



GOODWIN
INTERNATIONAL LTD

**AXIAL ISOLATION &
CONTROL VALVES**

www.goodwinflowcontrol.com

INSIDE

MAINTENANCE

Hydraulic hose failure is not often taken seriously. However, such failure can have severe consequences, so it's important to take measures to avoid it




WATER TREATMENT

If your processes use water and produce wastewater, climate change affects you. So it makes sense to devise ways to tackle the effects



VERDERFLEX®



*The Green
Peristaltic
Pumps*

GOODWIN AXIAL VALVE DESIGN & DEVELOPMENT

Following on from the successful product launch of the **Goodwin Actuated Axial Isolation and Axial Control Valves** in 2016, Goodwin are making great progress towards gaining industry acceptance and approval of these exciting new products

The Goodwin Axial Isolation and Control valves are fully pressure balanced which results in small actuation forces compared to other valve types. They are suitable for use in compressible and incompressible media applications as well as severely corrosive service. The valves are designed to be operated by hydraulic, pneumatic, electric or mechanical linear actuation which moves the piston in an axial motion from open to closed. The control valve variant is used in both modulating and on/off applications.

AXIAL ISOLATION VALVES

Axial Isolation valves are suitable for use in highly demanding applications where tight shut off, fast operation, high efficiency, low maintenance and low pressure drop are desirable. This type of valve is robust and reliable over long periods of service permitting use in safety critical areas.

Of course, customers, operators and suppliers related to the process industries are ever more safety and environmentally conscious, and rightly so. As such there are a series of approvals, tests and regulatory hurdles to overcome in order to introduce products into safety critical process plant, particularly in the oil and gas industry.

Goodwin has taken a conservative approach to new product release, with extensive testing conducted on the new valves in order to give confidence in mechanical and seal durability and integrity, both of which determine the life of the valve.

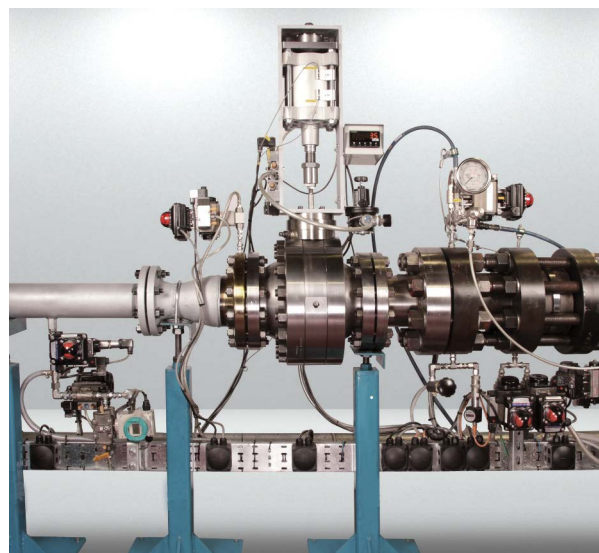
ENDURANCE TESTING

The endurance test rig has been designed, manufactured and operated in house to test the durability of all aspects of the Axial Isolation valve under as close to service conditions as practicable.

The test simulates flow through the valve and operation from open to closed within 2 seconds. Pressure is then applied and the valve is opened against full differential pressure. This test is repeated for thousands of cycles, during

which time measurement of actuation forces and seat leakage is conducted to detect signs of mechanical or seal degradation.

The aim of the test is to determine the duty cycle of the valve, with testing continuing until failure so that likely failure modes for the valve can be confirmed. With this information maintenance intervals and scope are set to ensure optimum product performance.



Goodwin has to date successfully conducted a substantial number of cycles with excellent performance results. Using test data, the Safety Integrity Level (SIL) of the valve is determined per IEC 61508. This is mandatory when the valve is specified for safety critical applications, including High Integrity Pressure Protection Systems (HIPPS).

TEMPERATURE & PRESSURE CYCLE TESTING

Designed along the lines of the widely recognised API 6A PR2 testing, the purpose of this test is to check the performance of mechanical components and seals when subjected to combined pressure and temperature cycling.

FIRE SAFETY TESTING

Fire safety testing is conducted to check the integrity of the valve in the event of

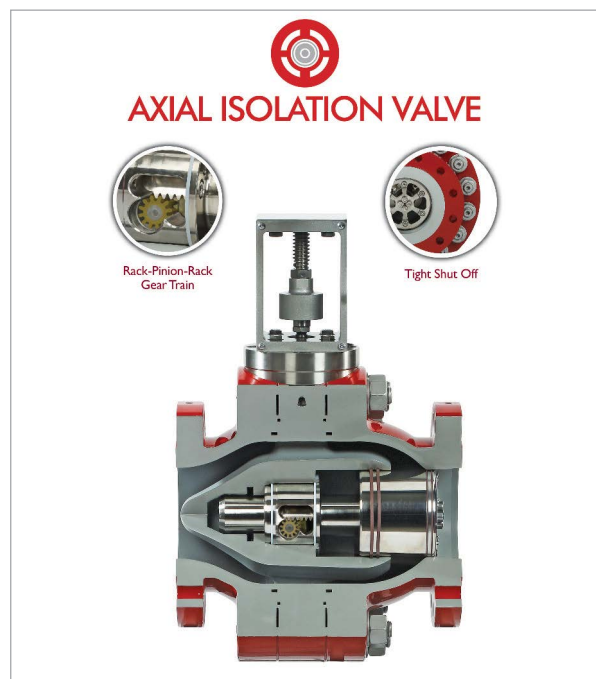


Figure 1: Goodwin Axial Isolation valve

a fire emergency. The testing is conducted in accordance with API 6FA and ISO 10497 and involves the valve being subjected to intense fire and then operated. The Goodwin Axial valve was able to conduct the test twice over and still meet the pass criteria, demonstrating how robust and safe the design is.

As the Isolation and Control valves share the same principle of operation, mechanism, body construction and sealing technology, the durability and reliability of both variants can be assured on the basis of the same tests.

AXIAL CONTROL VALVES

Axial Control valves are used as a key part of process control in a plant, they will normally be used to very accurately influence process conditions such as flow rate, upstream or downstream pressure and level control.

This type of valve is generally used in areas where fast response is required, such as anti-surge applications, as well as very high capacity and where rangeability is desired. The axial style control valve ticks all of these boxes, whilst also



Figure 3: Goodwin Axial valve undergoing API 6FA fire test

maintaining highly precise and reliable control over process variables.

Axial style control valves have unrivalled performance when it comes to achieving the optimum balance of key control valve performance factors including: high capacity, high pressure let down, rangeability, low noise generation and elimination of cavitation (in liquid service).

The Goodwin Axial control valve is also capable of achieving very tight shut off even after long periods in service and so can be specified for combined control and emergency shut down.

CONTROL VALVE TESTING

In addition to the mechanical and seal testing conducted, the Axial Control valve is also subjected to further testing in accordance with IEC 60534. The test programme is focused on the prediction of performance in service, in particular with regards to flow capacity and noise generation.

Optimisation of flow capacity, pressure control and noise for a given set of installed conditions is the key to ensuring that a control valve is correctly selected. By conducting extensive testing and capturing detailed performance data, Goodwin

control valves will be accurately sized according to application.

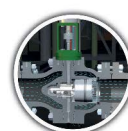
Goodwin designed, Installed and commissioned a bespoke blow down test facility with acoustic measurement capabilities in order to conduct the aforementioned testing. By doing this in-house, Goodwin gains a deep understanding of control valve performance. Extensive experimentation on trim design is possible as both the time and costs required are greatly reduced.

CONTROL VALVE SIZING SOFTWARE

Goodwin have developed bespoke control valve sizing software, allowing sizing to be conducted in compliance with the requirements of IEC 60534. This level of in house control over software and testing allows Goodwin to quickly validate optimised designs versus real measurements, giving absolute confidence that the designs we provide to our customers are correct.

The extensive testing, engineering know how and straight forward business approach of Goodwin make its Axial Isolation and Axial Control valves a logical choice for industries which require high performance, safe valves from a reputable and cost conscious manufacturer.

AXIAL CONTROL VALVE



High Capacity Single Stage Trim



High Pressure Drop Multi-Stage Trim



Figure 4: Goodwin Axial control valve

Goodwin International

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THE ESTABLISHED NAME IN CHECK VALVES

NOW

THE NEW NAME IN ISOLATION & CONTROL VALVES



Rack-Pinion-Rack Gear Train



Tight Shut Off



High Capacity Single Stage Trim



High Pressure Drop Multi-Stage Trim

AXIAL ISOLATION



Goodwin Axial Isolation and Control Valves provide durability, reliability and control, with the exceptional service that Goodwin is renowned for.

AXIAL CONTROL



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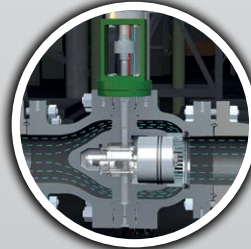
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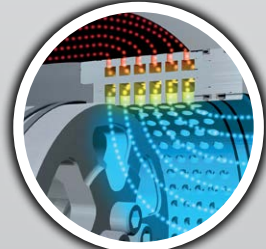
Rack-Pinion-Rack
Gear Train



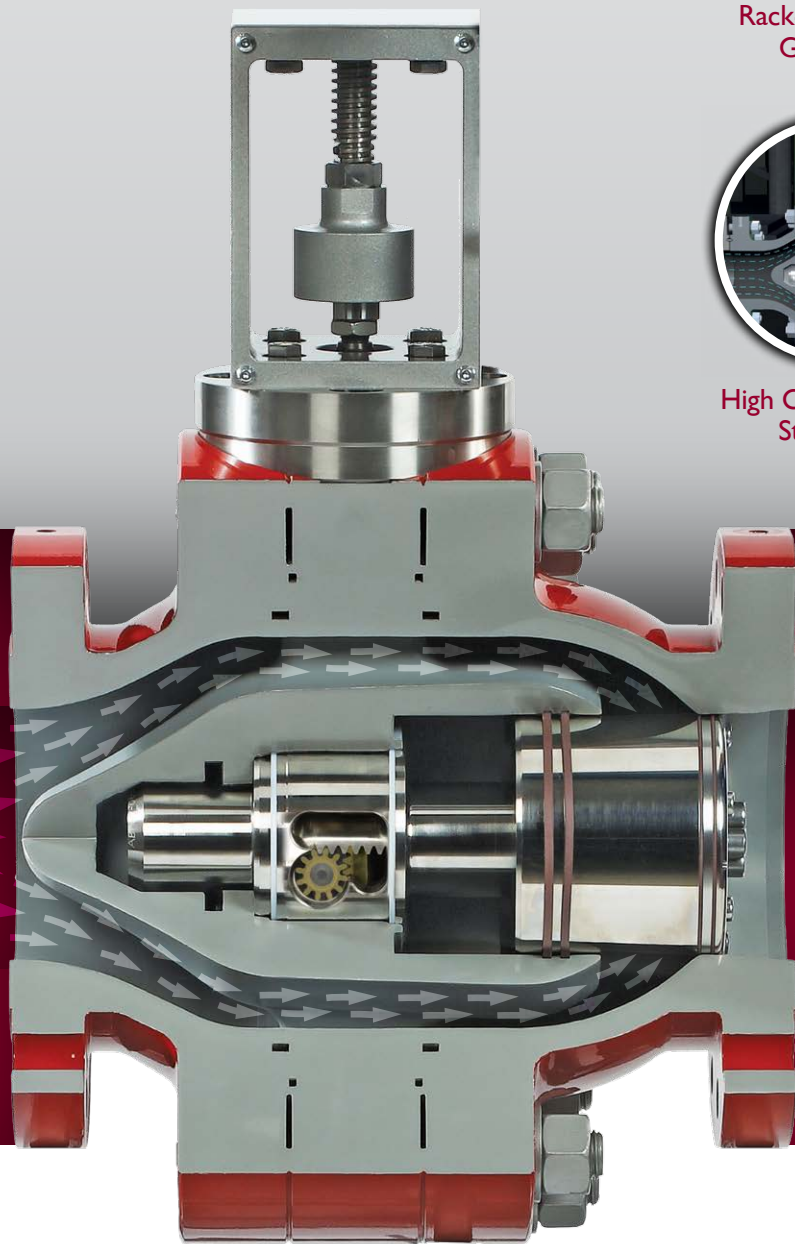
Tight Shut
Off



High Capacity Single
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AXIAL ISOLATION



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