

State-of-the art straight flow gas valves for use in reciprocating gas compressors





ABOUT US

Drivetrain is a leading supplier of technical products and services to the Mining, Energy, Transport and Defence industries. An extensive network of technical and supply capability across those markets allows Drivetrain to provide excellence in service to our customer base, along with an outstanding representation and support for our market leading brands. At Drivetrain, our customer's needs are the driver of all aspects of our business and our focus on flexibility, dependability and rapid service has allowed us to grow and develop as a true partner throughout our thirty years of operation.

From the engineering and supply of new mining and energy assets and equipment through to service, maintenance repair and overhaul, parts support and advanced fleet diagnostics, Drivetrain are positioned to provide through life support to industrial companies spanning the full product life cycle.

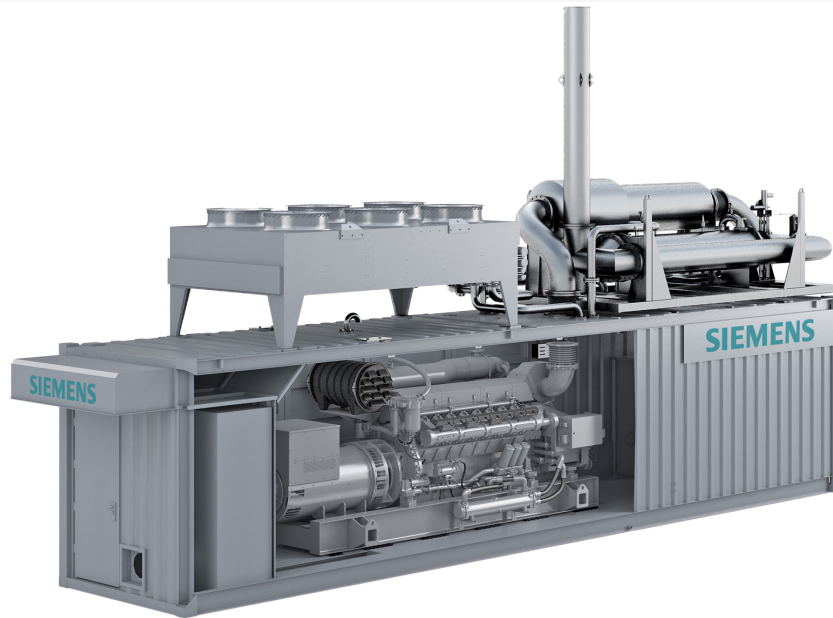
Make Safe

At Drivetrain, safety is our number one priority. With the deployment of our safe work systems, smart technologies and enduring commitment to employee education and training, we ensure a safe work environment for all who work in and visit our facilities. Our people are the strength that allow us to achieve. The passion and pride of our workforce is the driver of the quality and dependability that our customers rely on.

DRIVETRAIN'S SERVICES INCLUDE:

- ✓ Maintenance, repair and overhaul of drivetrain components
- ✓ Supply of utility vehicles to the mining industry
- ✓ Asset health diagnostics and management
- ✓ Application engineering
- ✓ Supply and maintenance of fixed plant and mobile engines
- ✓ Environmental Solutions
- ✓ Field service maintenance

Call **1800 999 922** for your nearest Drivetrain branch or visit www.drivetrainpower.com for more information.



ENERGY

Drivetrain supports the energy sector with innovative product solutions backed by industry-leading technical and engineering expertise. We partner with Australia's leading gas producers to introduce products that improve operating efficiency and reduce running costs, backed by specialist capability that ensures seamless implementation and high-quality ongoing support. Drivetrain also offer a complete range of gas, biogas, syngas and dual-fuel Siemens engines for the energy and resources sectors.

Our technical expertise extends beyond maintenance, repair and overhaul (MRO) to encompass high-value capabilities such as, project management, viability studies, fault finding, failure analysis and engine and component testing. We strive to improve our customers' performance and efficiency with best-practice systems and products, supported by engineering excellence.



GAS COMPRESSION

Drivetrain is proud to be a distributor of Zahroof products in Australia and New Zealand. Zahroof is a respected US-based company that manufactures state-of-the-art straight flow gas valves for use in reciprocating gas compressors.

Their patented Zahroof StraightFlo (SF) Valve can improve valve efficiency by up to 40% and extend run time between valve service intervals by more than five times. The Zahroof StraightFlo (SF) Valve improves efficiency and reliability while reducing the cost of ownership and is a 'drop-in' replacement for all other manufacturers' compressor valves.



ZAHROOF STRAIGHTFLO™ VALVE

An innovative and pioneering technology which has redefined the performance, reliability and service of reciprocating compressor valves. This revolutionary, award-winning valve utilises a patented design with a straight through flow path which reduces compressor power, can increase throughput, extends run time, reduces inventory, reduces emissions and allows for easy on-site service.



Increase Efficiency

Reducing power consumption improves operational flexibility and overall performance



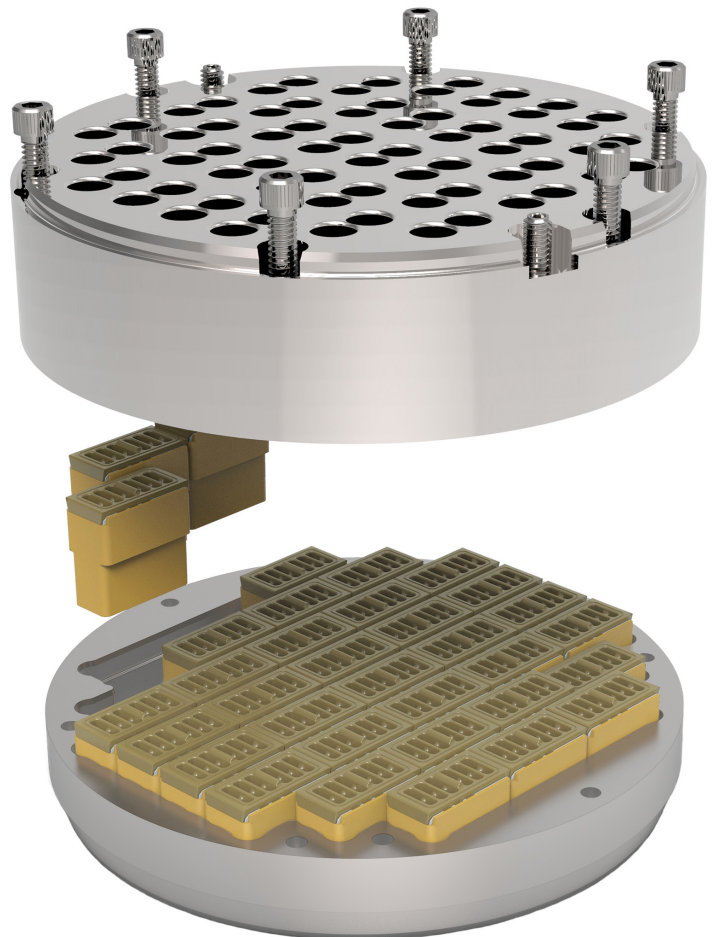
Ease of Service

There is no machining required to service the valves. Standardized modules are simply replaced on-site without special tooling. No third party service company needed



Improve Reliability






The simple robust design is very tolerant to liquids and solid particles in the gas stream resulting in longer compressor run times.





SUPERIOR VALVE

The StraightFlo™ valve is a direct drop-in replacement for existing compressor valves that can be fitted to all commercial reciprocating compressors, offering an unrivaled and multifaceted customer value proposition:

-  Improve reliability, extend the service life of valves and the compressor maintenance intervals by 5 - 10 times, minimizing compressor downtime and significantly increasing revenue
-  Substantially reduce service costs, eliminating the need for machining or skilled labor to refurbish valves
-  Considerable reduction in valve inventory by up to 85%, resulting in more efficient working capital management
-  Ability to materially reduce power consumption and emissions or opt to increase throughput by 3-15% using the same amount of power
-  Reduce emissions associated with valve service

PERFORMANCE GUARANTEE

The patented design and superior quality of StraightFlo™ valves allow several performance and reliability guarantees:

- 10-year warranty on valve housings
- 100% longer MTBF compared to other valves under same conditions
- 5-year ltd warranty on valve internals for low-speed compressors with clean gas (less than 600 rpm)
- Lower valve related vibrations and noise
- Guaranteed to improve performance under the same conditions



PATENTED MODULAR TECHNOLOGY

Instead of plastic or metal plates and coil springs, the StraightFlo™ valve design uses stainless steel reeds with a straight through flow path providing vast improvements in performance, capability, and reliability. Modules are interchangeable and independent of application, cylinder brand, stage or suction/discharge location.

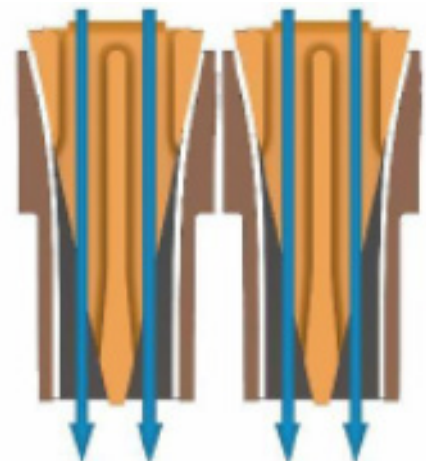


Standardized Module

With the same external dimensions, contain all the wear components of the valve

Straight Flow Path

Unique design allows gas to flow straight through reducing valve losses and improving compressor performance and reliability



StraightFlo™ Path

OPERATING CAPABILITY

- ✓ Drop-in replacement for conventional valves from 1.5" to 14" + diameter
- ✓ Enables new designs and applications
- ✓ Upto 3600 rpm
- ✓ -180 to 260°C (-300 to 500°F) temperature rating
- ✓ 4350 psi (300 bar) maximum differential pressure
- ✓ Non-corrosive and corrosive applications



APPLICATIONS AND MARKETS

- ✓ Natural Gas: production, gathering, transmission, storage, distribution, and CNG
- ✓ Shale gas, acid gas, Hydrogen, CO₂ – carbon storage and sequestration, enhanced oil recovery (EOR)
- ✓ Multi-phase compression, including LNG and Ammonia
- ✓ Refining, Chemical
- ✓ Air, air separation, technical gases, process gas
- ✓ Offshore, FPSO, remote locations
- ✓ Contract compression

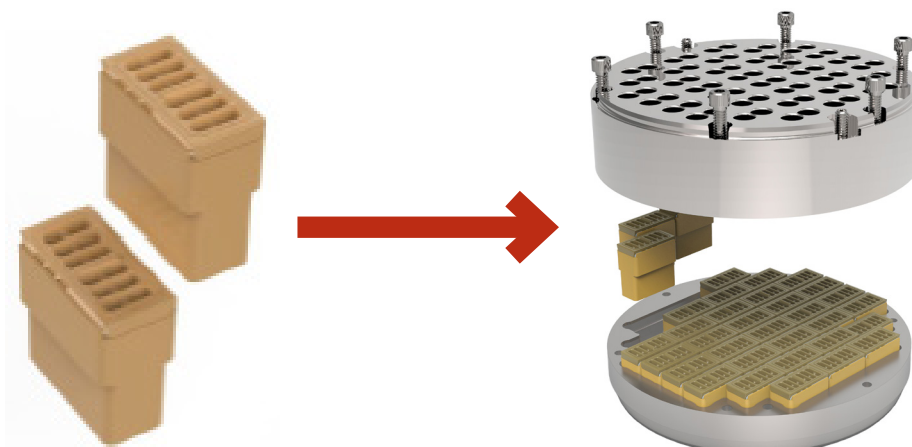
MODULAR DESIGN

The StraightFlo™ valve features a unique design where several standard and interchangeable modules are held stationary between the valve seat and carrier. With this design, the wear parts of the valve are completely contained within the module, causing no impact on the valve seat and carrier.

Since the valve seat and carrier never need to be machined, companies can quickly and easily bring the valves back to factory fresh condition by changing out the modules on-site.

In addition, inventory can be minimised by over 85% as compared to conventional valves. Typically only 6 to 8 different modules are needed for an entire fleet of compressors irrespective of compressor brand, operating conditions or application.

All StraightFlo™ valves are optimized for a specific application by selecting the proper module variant using ZVI's proprietary Dynamic Valve Sizing Program.





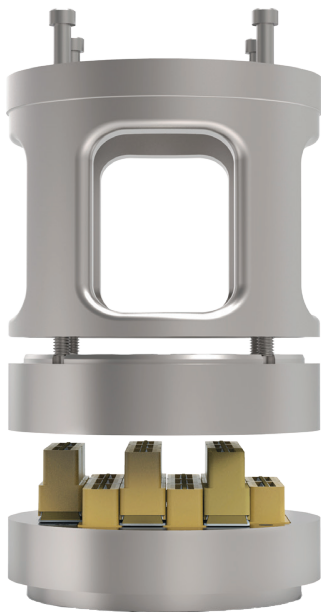
STRAIGHTFLO™ PRODUCTS

Technology Benefits

- ☑ Increase efficiency
- ☑ Reduce hp
- ☑ Increase reliability
- ☑ Reduce emissions
- ☑ More tolerant to debris & liquids
- ☑ On-site serviceability
- ☑ No machining for valve service
- ☑ Reduce and simplify inventory
- ☑ Reduce vibration and noise



Standard



Stacked

Reduce or eliminate damage that can occur from liquids in the gas stream



Valve Protection Mesh (VPM)



Optimal flow
for transmission
and pipeline
applications

Double Deck



Integral Cage and Cap



Concentric

Simplifies
serviceability and
improves safety



Integral Cage



STRAIGHTFLO™ UNLOADER VALVE

The StraightFlo™ unloader features the same modular design as all StraightFlo™ valves providing improved efficiency and reliability for reciprocating compressors. The StraightFlo™ unloader is a direct drop-in replacement for traditional unloader valves and delivers the performance improvements realised with the StraightFlo™ valve.

Two unloader technologies, the poppet style unloader and the hollow piston unloader, delivers a step change in reciprocating compressor performance, serviceability and reliability.



Suction Valve with Unloader



Suction Valve with Unloader and Cage



Plug Unloader

Adaptable Design

The StraightFlo™ Unloader valve can be used in all brands of compressors, at any speed and application

Drop-In Replacement

The StraightFlo™ Unloader is an optimal replacement for both finger type and plug type unloaders, utilizing the existing actuator system on the compressor

Improved Performance

The StraightFlo™ Unloader delivers for your company by decreasing downtime and lowering maintenance costs



STRAIGHTFLO™ VALVE - A GAME CHANGER

- ✓ Drop in replacement for existing reciprocating compressor valves
- ✓ Tolerant to liquids and solids
- ✓ 3 – 15% lower compressor power/ greater throughput
- ✓ Lower power cost, lower engine emissions
- ✓ Increased throughput through same equipment
- ✓ Added revenue / eliminate additional capital (compression) costs
- ✓ Easiest valve to service. 5 -10 minutes/valve on site
- ✓ Eliminates machining, special tooling, leak test, transport & inspection
- ✓ 10 year Warranty on SST housing
- ✓ 5 year warranty on modules for slow speed (<600 rpm) good quality gas application
- ✓ Reduces inventory by >80%

Increase Revenue and Profitability

Increasing compressor throughput is an easy way to boost revenue and add dollars to the bottom line. StraightFlo™ valves reduce the power requirements to operate a compressor significantly reducing fuel costs or electricity. The saved power can be used to push more flow through the same compressor.

Unlike a conventional valve where the flow makes at least two right angles while traversing the valve, the flow through a StraightFlo™ valve has negligible deviation of the gas stream with very low resistance to the flow resulting in a very low pressure drop.

Save Resources and Reduce Emissions

The reduction in power of 3 – 15% associated with the use of StraightFlo™ valves reduces fuel consumed and lower exhaust emissions to the environment. The increased MTBF by using StraightFlo valves reduces fugitive emissions released when compressors are shut down for service.



Revenue



Eco-Friendly



CAPEX



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