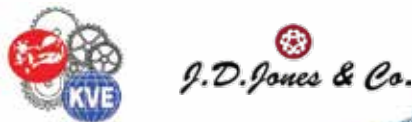


PCS

PROCESS CONTAINMENT SOLUTIONS PTY LTD.



“SERVING THE PROCESS INDUSTRY”
Proudly BBBEE Level 2





“ SERVING THE PROCESS INDUSTRY ”

Process Containment Solutions (PTY) Ltd. trading as PCS was founded to offer a specialised service in the market place for engineered industrial solutions, providing products and services with a particular focus on rotating equipment and associated ancillaries, valves, expansion joints, and fabrication, offering complete packages from design to commissioning. Through a combination of our own in-house products and fabrication capabilities as well as joint ventures, franchises, co-operation agreements and distributorship with global brands such as Flowserve, Pentair, UNC and Premier Valves, we can offer technically acceptable and economically viable alternatives to fully imported packages.

With combined industry and product experience of over 150 years, the founders, management and staff of PCS are uniquely positioned to meet our client’s specialised needs. We have our central administration office and a sales office situated in Cape Town, a sales office, projects department and Workshops covering approximately 800m² which act as a QRC (Quick Response Center) for Pump & Mechanical Seal Refurbishment, the Manufacture of Sealing Systems, Base Plates and Vacuum Pumps and the Packaging of Complete Pump and Motor Skids located in Prospecton, Durban, as well as a sales office in Richards Bay. We have also just commissioned a 900m² workshop for Pump and Mechanical Seal repairs in Jet Park Johannesburg and are also in the process of opening satellite centers in Secunda and Upington. Our highly experienced staff include a rotating equipment specialist with 30 years of refinery and API experience and recognised as one of the best in his field by South African petrochemical refineries.

PCS IS THE ONLY APPROVED REPAIR FACILITY FOR FLOWSERVE PUMPS AND MECHANICAL SEALS IN SA

OUR RANGE OF PRODUCTS & SERVICES INCLUDE:

- Pump and Pump Rebuilds
- Industrial Fans & Air Movers
- Mechanical Seal and Seal Repairs
- Sealing Systems
- Electric Motors
- Expansion Joints in Fabric and Metal
- Vacuum Pumps (Sales, Service, Repairs)
- Gland Packing & Gaskets
- Product and Industry Related Training
- A Wide and Proven Range of Mechanical Valves
- Maintenance and Performance Related Contracts
- Transmission Couplings (Metal Membrane and Elastomeric)
- Control Valves and Related Instrumentation
- General Industrial Supplies
- Bearing Isolators
- Complete Skid Design and Fabrication
- Air Diaphragm Pumps
- Corro Resin Pumps



WE ARE THE APPROVED DISTRIBUTORS FOR:

Flowserve API and engineered pumps, Flowserve mechanical seals, Flowserve MEN DIN standard industrial pumps, Flowserve Durco ANSI & ISO process pumps, Flowserve "Bearing Gard", Pentair Nijhuis (Fairbanks Morse) NFPA 20 approved Fire pumps, premier valves, control valves, Gem-Trim, instrumentation and expansion joints.



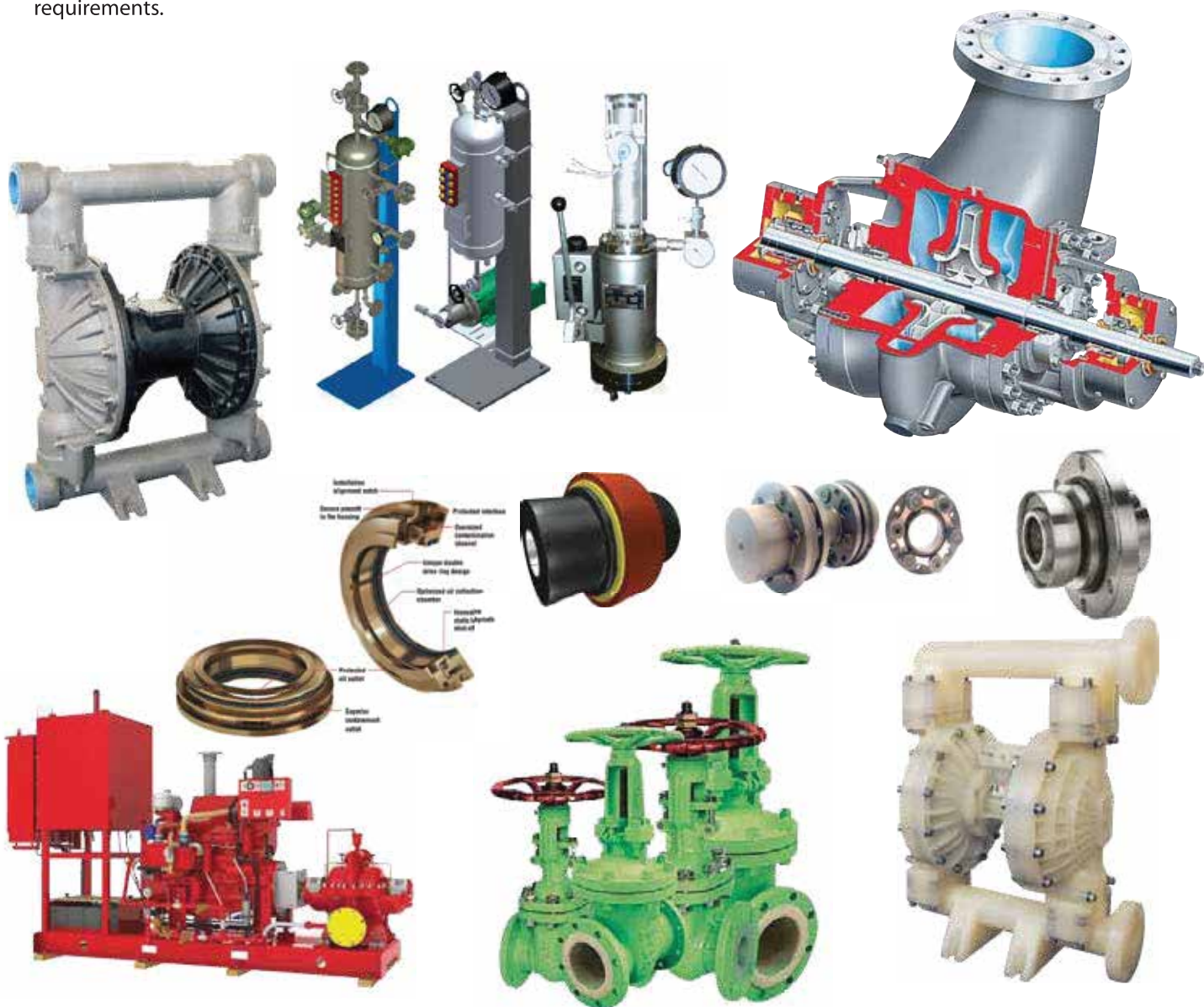
PCS manufactures our own API mechanical sealing systems and non-API sealing systems for single and double mechanical seal arrangements. PCS has its own brand mechanical seals and couplings called Roflex.

PCS valve division is focused on dedicated service supporting all aspects of valve supply and maintenance for the process industry.

OUR VALVE DIVISION HAS THREE CORE ELEMENTS:

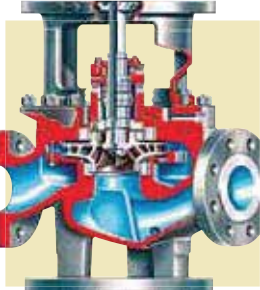
- We engineer, source and supply mechanical and control valves for clients, securing the shortest delivery time, competitive pricing and quality standards.
- We have partnered with the local and international manufacturing companies to design according to client specific and also comply with international standards.
- We manage the integrity of our clients valve portfolio.

Through our co-operation and representation agreements with selected renowned valve manufactures, we are able to offer a single source capability to provide all the different valve types required by a client for new projects and on-going maintenance requirements.



API Pumps

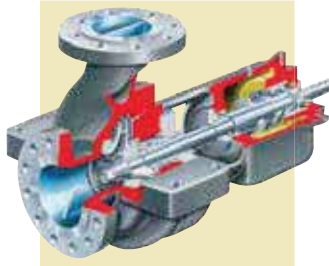
PVML (OH5)
VERTICAL IN-LINE



Standards

- ISO 13709/API 610 (OH5), LATEST EDITION BS 4082R.

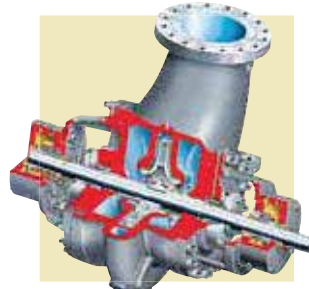
HPX (OH2)
CENTRE LINE MOUNTED



Standards

- ISO 13709/API 610 (OH2), LATEST EDITION.

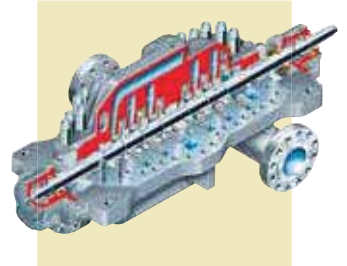
HDX (BB2)
RADIALLY SPLIT, DOUBLE SUCTION,
SINGLE STAGE



Standards

- ISO 13709/API 610 (BB2), LATEST EDITION.

DMX (BB3)
AXIALLY SPLIT MULTISTAGE

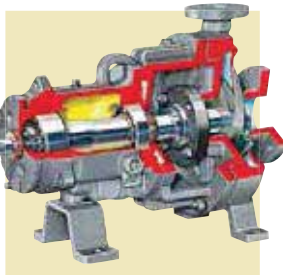


Standards

- ISO 13709/API 610 (BB3), LATEST EDITION.

ANSI & ISO Pumps

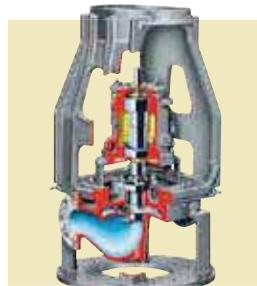
DURCO ASME
STANDARD



Standards

- ASME (ANSI) B731.

DURCO IN-LINE



Standards

- ASME (ANSI) B732.

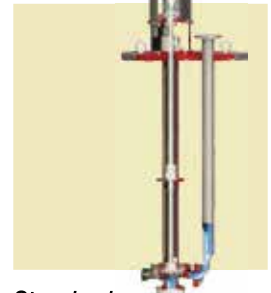
DURCO / CPX ISO
STANDARD



Standards

- ISO 2858
- ISO 5199

CPXV
CHEMICAL
SUMP

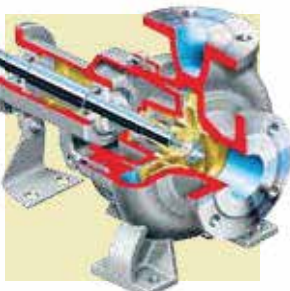


Standards

- ISO 13709/API 610, 8TH & 10TH EDITION.
- ISO 5199

DIN Pumps

MEN
END SUCTION



Standards

- DIN 24255
- EN 733

MEN BLOC
CLOSE COUPLED



Standards

- DIN 24255
- EN 733

MEN / MEN BLOC
PUMP SET



Standards

- DIN 24255
- EN 733

RETROFIT TO EXISTING API EQUIPMENT

Flowserve developed the RVX back pull-out assembly upgrade program to address users’ needs for improved pump reliability with reduced maintenance costs. The RXV program assists users in reducing fugitive volatile organic compound (VOC emissions) while gaining the advantages of bearing frame in full compliance with ISO 13709/API610, latest edition. It also addresses users’ needs for improving pump hydraulic efficiency stability by replacing existing impellers with ones specifically selected for current operating modes. This dedicated aftermarket support program makes Flowserve unbeatable as a problem solver for improving field equipment reliability and reducing total life-cycle costs.

RVX Upgrade (HORIZONTAL)

ISO 13709 / API 610



RHWX Upgrade (VERTICAL)

ISO 13709 / API 610



Flowserve Mechanical Seals



Slurry Seal



ISC2 Seal (ANSI / API)



QB Seal (API)



HERITAGE BRANDS

Flowserve is comprised of the world's best brands in fluid motion and control products. The 216 plus year history of Flowserve heritage brands serves as the foundation for the breadth and depth of Flowserve products and services today.

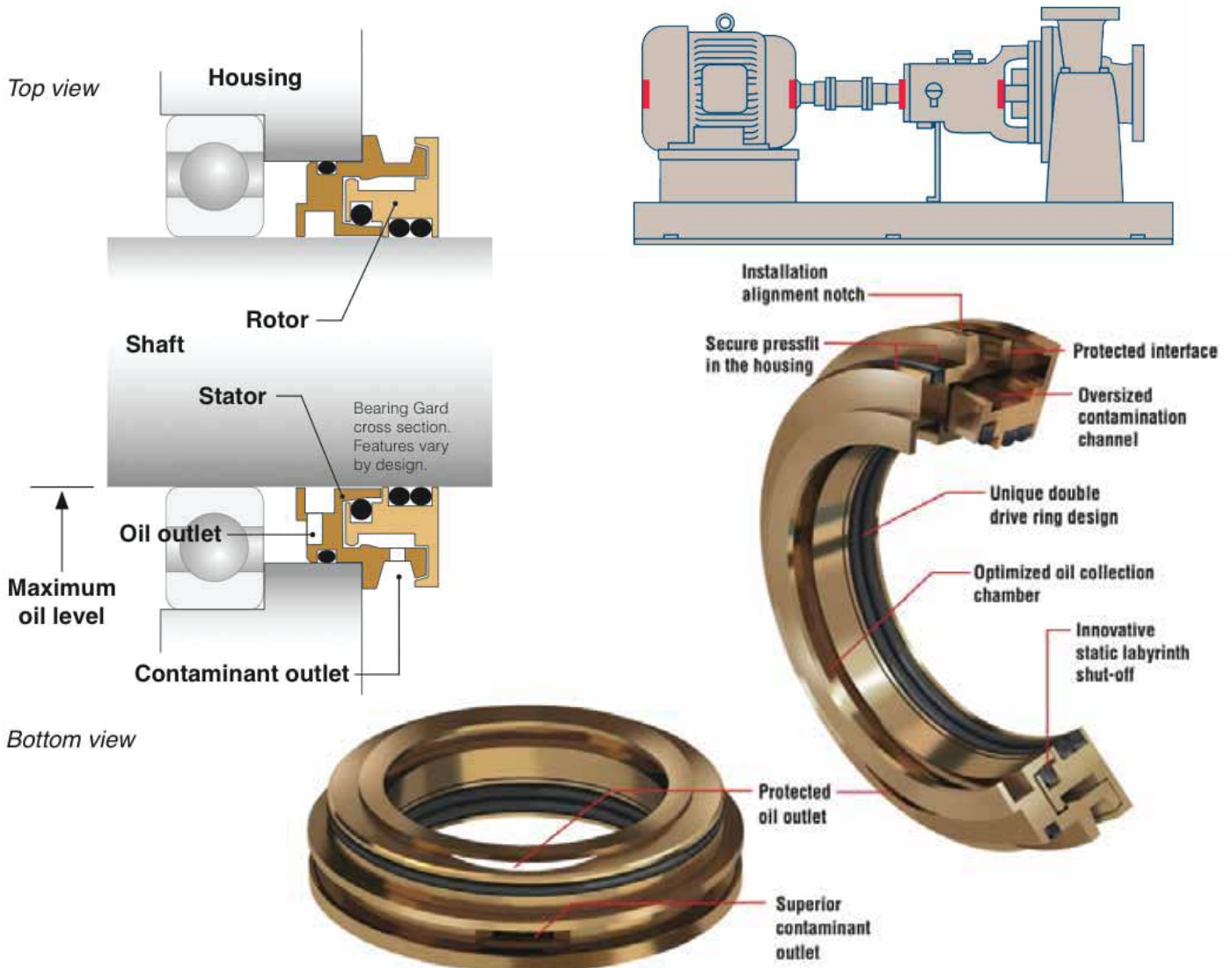
- ACEC Centrifugal
- Argus
- Calder
- Edward
- INNOMAG
- Logix
- Norbro
- Pleuger
- Sier-Bath
- Valbart
- Worthington
- Accord
- Atomac
- Cameron
- Flowserve
- Kammer
- McCANNA-MARPAC
- Nordstrom
- Schmidt Armaturen
- SIHI
- Vogt
- Worthington Simpson
- Aldrich
- Automax
- Durco
- Gestra
- Lawrence Pumps
- Niigata Worthington
- Pac-Seal
- Scienco
- TKL
- Western Land Roller
- Anchor/Darling
- Byron Jackson
- Duriron Pipe
- IDP
- Limitorque
- Noble-Alloy
- Pacific
- Serck Audco
- United Centrifugal
- Wilson-Snyder



BEARING GARD

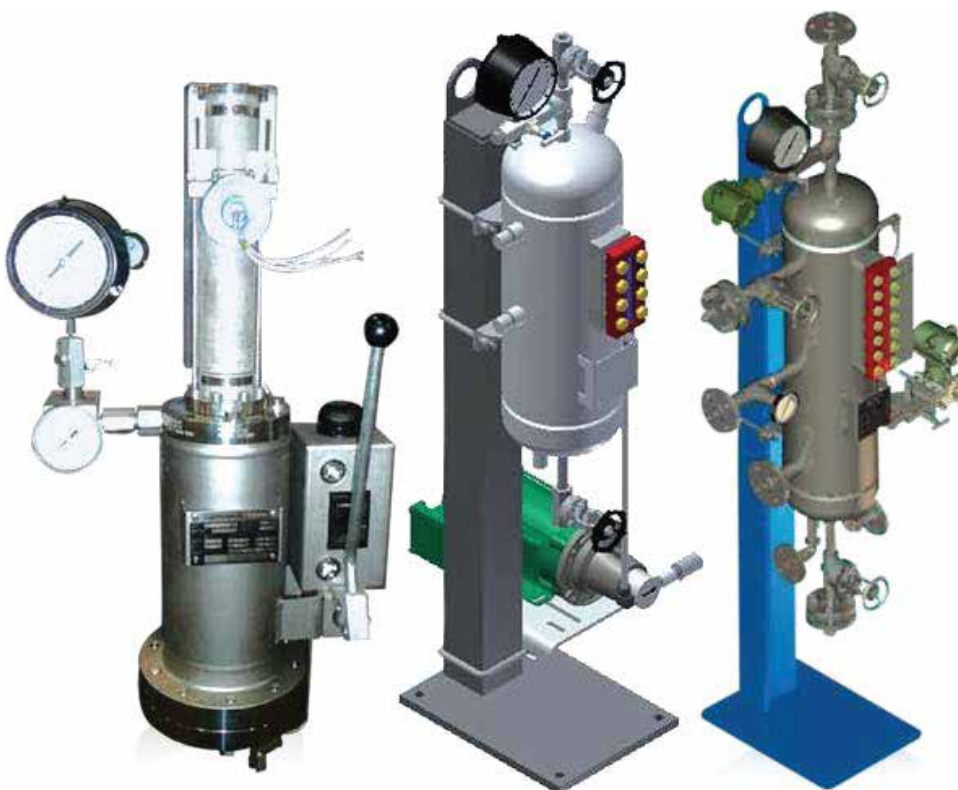
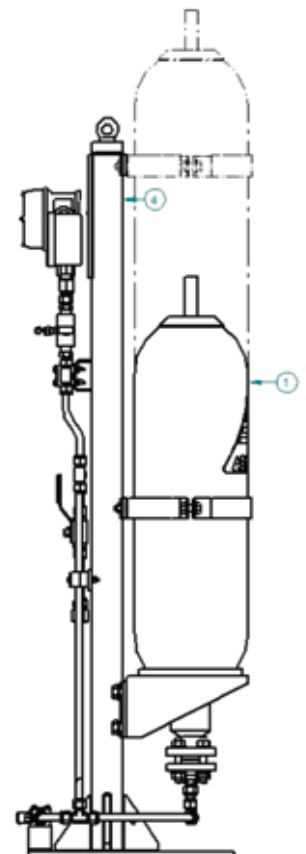
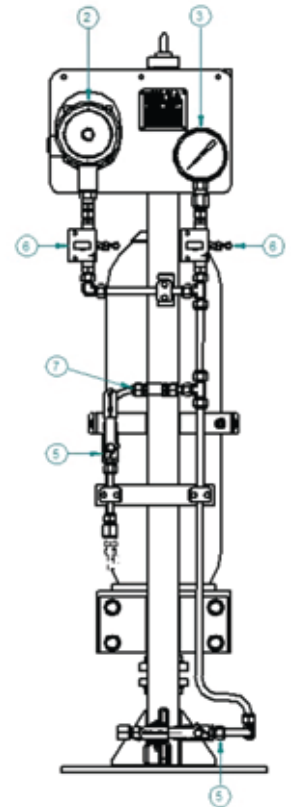
Bearing Gard is a permanent, non-wearing bearing protection device used to replace lip seals and simple labyrinth seals in bearing housings for pumps, motors, gearboxes and other pieces of rotating equipment. It's main purpose is to retain lubrication in the bearing housing and prevent the ingress of contamination as this can lead to premature failure of the lubrication and bearings. They can also be used in a hazardous environment to ensure safe and reliable operation of the Bearing Gard follow all installation, operation, and maintenance instructions. Failure to comply with these instructions may result in frictional heating of the Bearing Gard components and will result in loss in performance. Designed to offer superior protection for your bearing housing Bearing Gard bearing isolators directly assist equipment reliability by creating a strong barrier against external contamination.

- Static protection is assured by an internal O-ring between the rotor and stator.
- Dynamic protection is provided by a tortuous labyrinth that effectively repels severe environmental conditions.
- Standard design accommodates axial shaft movement of 0.63 mm (0.025 inch) TIR
- Static sealing quickly transitions to non—contacting operation for consistent performance and will not wear on the shaft or equipment.
- Oil retention features work to keep oil inside the bearings and off the ground.



FEATURES AND BENEFITS

- Cost effective compression fit alternative to the standard 53 system, designed to fulfil the need of the standardised flushing piping arrangement 'API Plan 52 & 53 systems' as defined by API 682 / API 610.
- For use in applications where barrier fluid contamination by gas supplies is not acceptable.
- Barrier fluid circulation achieved by either the thermosyphon effect or through use of a seal pumping scroll.
- Commonly used in chemical, offshore and refining industries.
- Maximum assembly pressure (60 bar.) This is dependent on limits of individual components selected. Refer to the systems technical applications division for higher pressure applications.
- Utilises oil or water as barrier fluid.
- **MADE IN SOUTH AFRICA**





VALVE AND RELATED PROCESS INSTRUMENTATION DIVISION

PCS valve division is a focused service dedicated to supporting all aspects of valve supply and maintenance for the process industry. Our valve division has 3 core elements:

- We engineer, source and supply mechanical, On Off and control valves for clients, securing the shortest delivery time, Competitive pricing and stringent quality standards.
- We have partnered with local and international manufacturing companies to design according to client specifics and also comply with international standards.
- We manage the integrity of our clients valve portfolio.

Through our co-operation and representation agreement with selected renowned valve manufactures, we are able to offer a single source capability to provide the different valve types required by client's for new projects and on-going maintenance requirements. We source from our worldwide network to satisfy customer shut down and installation schedules.

THE PROCESS INDUSTRY WE SERVE:

Oil & gas, chemical, pulp & paper, mining, power generation, steel production, food & beverage and other related process industries. We work with customers across the process industry and our dedicated and flexible approach, combined with local and international foot print ensures that we are able to satisfy our customer's varying requirements. Premier valves, PCS in partnership with valve specialist's have the capability to design and develop valves in accordance with recognised worldwide standards - API, ASME, ASTM, EN, NACE, ISO, BSI, MSS and PED. Our technical ability and experience means that we can find the right solutions for any extreme condition such as:

- Corrosive Service
- Low Maintenance Valves
- Steam Conditioning
- Advanced Testing
- High Temperature
- Noise Attenuation
- Erosive (Slurry) Service
- Cavitation

PCS with our partners offer repair and testing services for all types of valves which includes API hydrostatic and pneumatic valve leak testing. PCS has excellent links to major valve manufactures, we monitor delivery times and technical innovation enabling our customers to receive valves in a timely manner that meet your technical requirements and costs effectively. IPV are members of the AVK international group with local manufacturing capabilities, whom we have representation agreement with for selected customers. Valve scope, mechanical, on-off and control valve types and specifications such as ball, globe, butterfly, gate, diaphragm, desuperheaters, safety valves and more. We also provide replacement part for renowned international control valve brands.





VALVE REFURBISHMENT

PCS/KIRA Valves & Engineering are fully equipped to refurbish most makes, types and sizes up to 3 meters of low, medium and high pressure valves. Our premises consists of a valve refurbishing facility which consists of stripping, sandblasting, machining, welding, assembly, testing and spraying services.

Valves are returned to their original condition by applying either the clients' specifications or working to local and international standards.

Up to 90% of all valves can be refurbished at considerable savings when compared to purchasing a new unit.

The client on average saves **40%** in comparison to the cost of a new valve.



Services offered:

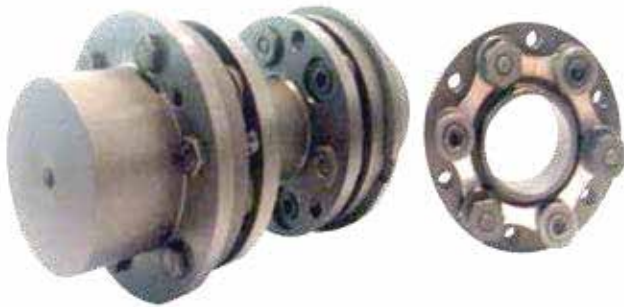
- Hard-faced stellite welding & high velocity oxy-fuel process is offered.
- Ball grinding is offered
- Reverse engineering by customer consent or OEM spares.
- Options of NDT such as x-rays, dye-pen testing, UT testing, MPI & PMI are available.
- Valves are pressure tested as per ASME B16.34, API 598 or BS Standards using test rigs with 1000 bar testing capabilities.



Roflex

Roflex is a PCS product that supplies the process industry with a range of couplings, mechanical seals and gland packing products. Our extensive range has been created to cover the complete process industry from water to oil and gas application.

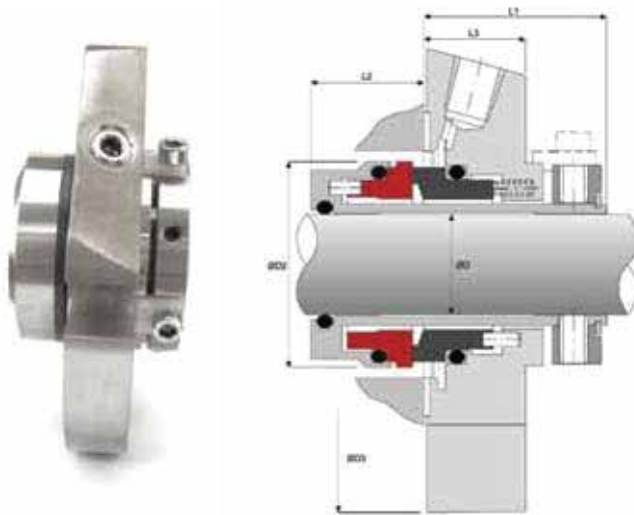
RFKS SERIES TRANSMISSION COUPLINGS



ELASTOMERIC



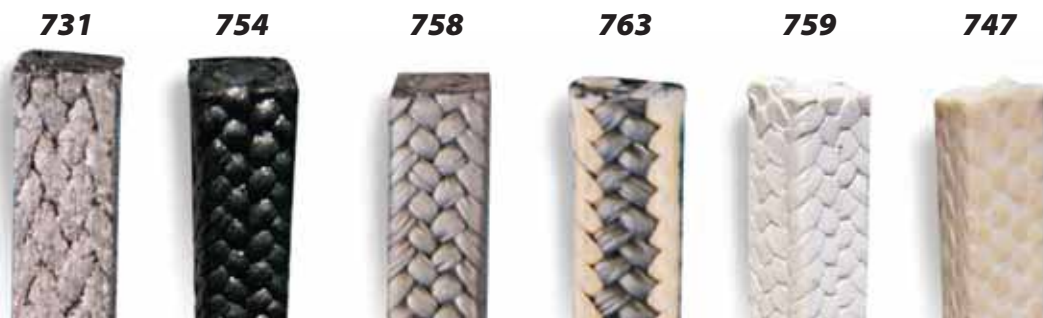
CARTRIDGE MECHANICAL SEALS



MECHANICAL SEALS



GLAND PACKING RANGE





PCS TITAN - S - (1/4")



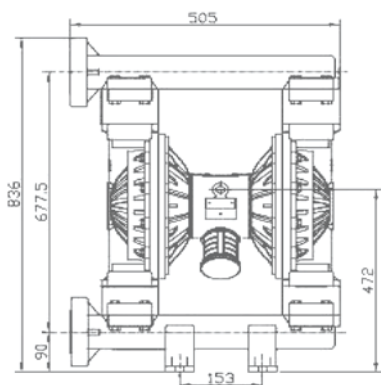
PCS TITAN - F - (1/2" NM PUMP)



PCS TITAN - B - (2" NM & M PUMP)



PCS TITAN - A - (3" NM & M PUMP)

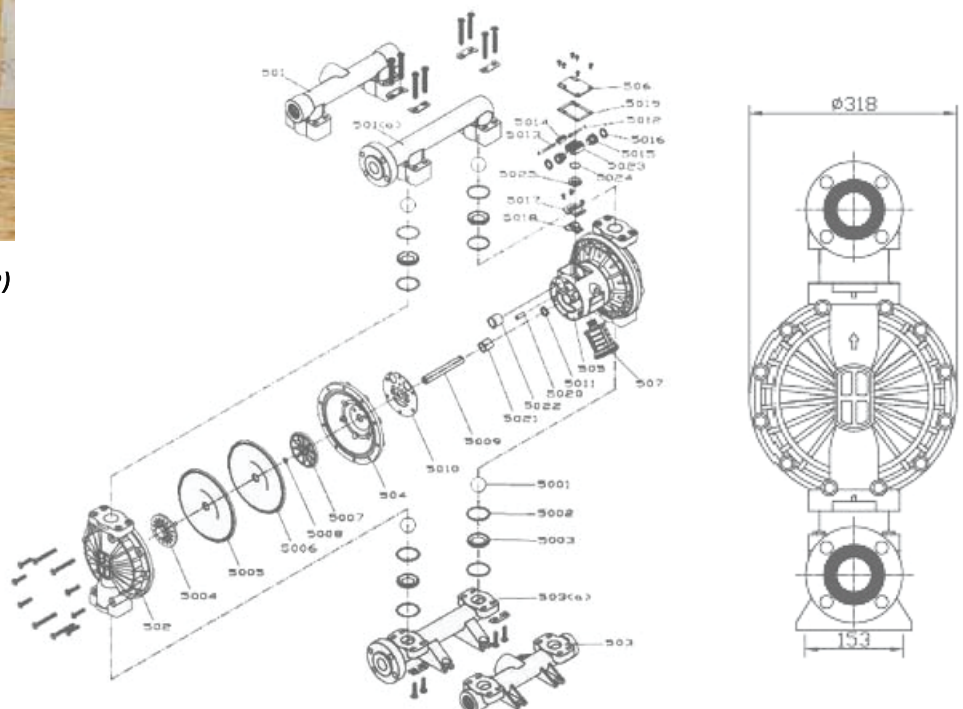


DIAPHRAGM PUMPS

PCS TITAN pumps are commonly used in industries where pumps would be required to operate without an operators continued attention, where there is a very real chance that the pump can run dry or where the air pump will need to handle slurries and sludges. The simple and safe operation of air operated double diaphragm pumps with pneumatic control means that this pump is ideal for operating in zone one areas where there is demand for intrinsically safe operation. The pump is simply turned on or off by either closing the fluid discharge valve anywhere on the discharge line or by regulating the air supply. Features of Diaphragm pumps:


FEATURES

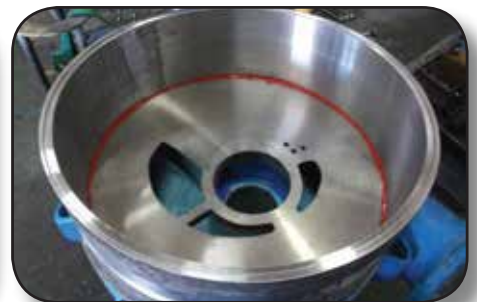
- Can run dry, without flow, for considerable periods of time without damage.
- Have good suction lift characteristics, typically up to 8 or even 9 meters at sea level.
- Excellent dry priming capability diaphragm pumps are capable of priming themselves from a dry start.
- Handle slurries and slurries with a relatively high amount of grit and solid content.
- Handle highly viscous liquids. A viscosity correction chart can be used as a tool to help prevent under-sizing AODD pumps.
- Available for industrial, chemical and hygienic applications from Stainless Steel to Polypropylene pumps PCS covers all your pump needs.



TITAN VACUUM PUMPS

LIQUID RING DESIGN FEATURES

- TITAN Vacuum Pumps are 100% South African manufactured, built to suit the harshest conditions. 
- Standard Materials of Construction include cast iron, bronze, 304 and 316 stainless steel (Exotic Materials can be arranged).
- TITAN Pumps have stuffing boxes built into the Casing Covers.
- Due to the lengthy service in the industry, modifications have been made to this range of pumps to improve the overall serviceability, which also ensures that TITAN Vacuum Pump wet-end spares are interchangeable with the majority of the vacuum pump population.
- High vacuum levels up to 25m Hg with the correct service liquid and cooling temperatures.
- Long service life, low maintenance costs.
- Minimal moving parts.
- Limited pulsation gasflow.
- Cooling water acts as lubrication internally.
- Liquid and vapour handling capabilities.
- Low starting torques.
- Variety of different service liquids available to be used.



FLEXIBLE EXPANSION JOINTS, PROTECTIVE COVERS, REMOVABLE & REUSABLE INSULATION COVERS

Our co-operation with competent and experienced manufacturers of fabric, rubber and metal expansion joints, protective covers, removable & reusable insulation covers, enables us to deliver operationally effective and economically attractive solutions. Products are manufactured in local fabrication plants. (Many thermal insulation products are imported from leading overseas manufacturers.) Our local manufacturers have staff of highly qualified engineers, technicians and consultants who can customise products for the requirement of every workplace circumstance and environment.

FABRIC EXPANSION JOINTS

Fabric expansion joints are extremely flexible and can be made from a variety of special woven fabrics coated or laminated with selected elastomers or fluoropolymers. Fabric expansion joints are used to insulate, to avoid mechanical loads and to protect against abrasion. They offer advantages for the pipe work designer as they can absorb movements simultaneously in several directions. Further, they have almost no reactive forces and require little space. Fabric expansion joints are easy to customise to suit existing operating conditions and are easy to transport and install. In comparison to metallic expansion joints fabric offers almost unlimited flexibility, giving the pipe work designer more options. Fabric expansion joints are installed in systems operating with low pressure and dry media. The movements that the units are capable of accepting can be singular or a combination of;

- Axial movement (*compression and extension*)
- Angular rotation
- Lateral movement
- Torsional rotation

A significant difference between fabric expansion joints and metallic or rubber expansion joints is that fabric types can readily accept the torsion which is undesirable with metallic and rubber expansion joints. Furthermore in addition to absorbing movements in the system, Fabric Expansion Joints can also absorb vibrations and help to reduce or eliminate noise. Types: Circular, square and rectangular in all sizes for temperatures of +1200°C.

RUBBER EXPANSION JOINTS

In order to offer a complete product range for our customers we also design and supply rubber expansion joints.

Advantages:

- Still able to absorb large movements
- Reduces water shock
- Temperature, chemical and corrosion resistant
- Absorbs axial, lateral and angular movements
- Safe, reliable, durable and maintenance free
- Managing flexibility and pressure



SAFETY SHIELDS & VALVE COVERS

These permit visual inspection of pipe joints by personnel so leaks can be detected rapidly and prevent possible injury. This unique viewing shield withstands temperatures up to 150°C and pressure to 1000 psi (69 bar). It demonstrates a broad spectrum of chemical resistance, especially to most corrosive chemicals and organic solvents. This range of products are fully manufactured in South Africa and are offered to fit all universal size flanges and valves. Along with the covers the range includes leak detection paints and hard shell flange covers.

REMOVABLE FLANGE COVERS



REMOVABLE & REUSABLE INSULATION COVERS

Custom designed and manufactured removable and reusable thermal covers for any application. Removable insulation covers have proven themselves a very lucrative product because of their clear benefits: Energy conservation and personnel protection. Although in most cases removable insulation covers are initially more expensive than conventional permanent insulation, their cost becomes justified when the permanent insulation must be replaced. In recent years higher labour costs continued to narrow the price gap between permanent and removable reusable insulation that benefits energy saving. In most cases these thermal covers pay for themselves in 6-18 months when installed on hot steam or processing equipment just by reducing heat losses from the items usually not covered with any insulation. They are time and labour savings since most of the covers can be installed or removed within a few minutes, they offer significant labour and time savings in the initial insulation of equipment as well as its re-insulation after maintenance and inspections.



COMPLETE SKIDS - TRAINING, REPAIRS AND GENERAL ENGINEERING



With our own brands for Sealing Systems, Transmission Couplings and our in-house Fabrication facilities, PCS is uniquely positioned to offer complete Skid assemblies.

Our product specialists each have over 30 years experience in their respective fields, rotating equipment, valves and mechanical seals. Our API specialist is recognised as one of the best in his field by South African Petro-Chemical refineries.

PCS offers various training modules for all markets and product ranges basic 1 day to 5 day advanced training courses.



PCS strive to carry out good and sound engineering practices from conceptual design to final product, be it base plates, sealing systems or complete vessels. Our drafting department works accordingly to ISO regulations and processes to produce high end quality products. With a range of tailor made customer requirements and needs, PCS fabrication for the complete process industry.

GENERAL ENGINEERING SUPPLIES: PCS service various clientele outside the borders of South Africa where resources are limited. Due to our vast network of suppliers we are capable of sourcing any products the client may require.

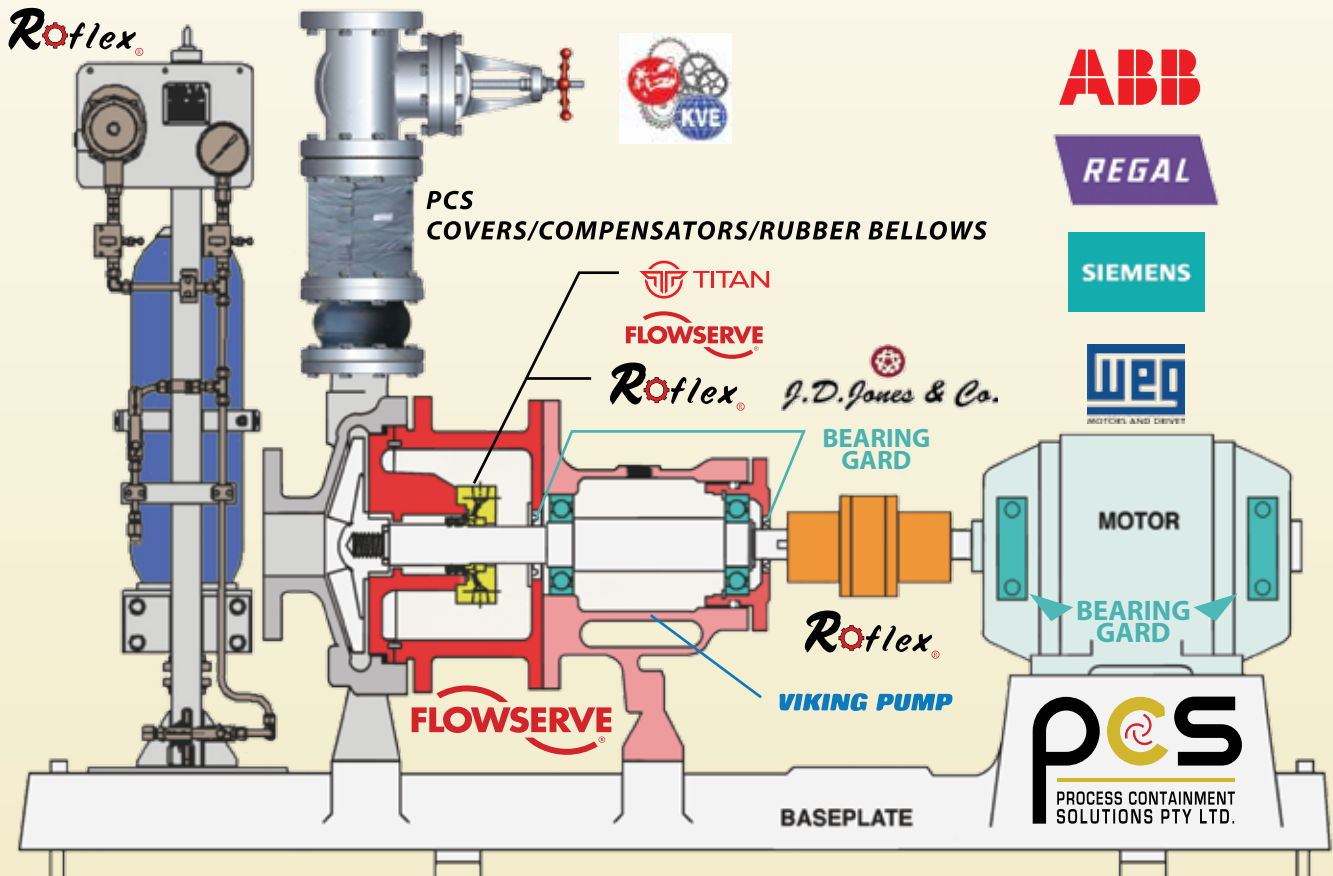


PCS

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“SERVING THE PROCESS INDUSTRY”



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