The main tasks of the seals are

- to retain product (liquid, gas, powder)
- to exclude contaminants
- to maintain line pressure

The most important factors to take into consideration when selecting a seal are

- **pressure**
- **temperature**
- **friction**
- **surface properties**

Types of seals include : Gaskets

“O” rings

Contact seals

Cover seals

Gland packing

Mechanical seals

Labyrinth seals

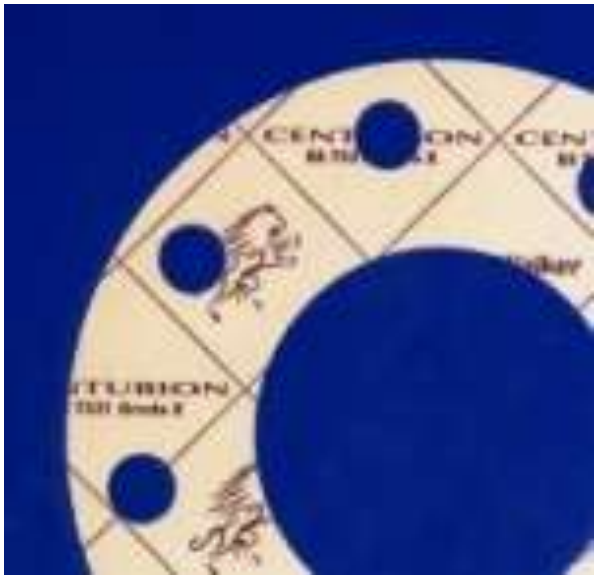
Soft cut gaskets

Soft-cut is a general term for gaskets produced in any material that is flexible - ranging from inexpensive gasket papers, through to Corks, Rubbers, Fibre based materials, Felts, Foams, Plastics etc. Production is not limited to straightforward flat cut parts, but can also form parts into shapes.

Material such as Leather is still used to produce cup washers for valves for instance and electrical insulation materials are often produced with bends and creases to give a continuos electrical resistant barrier inside many pieces of equipment.

Compressed fibre jointings

A range of highly proven non-asbestos sheet jointings that covers flange gasket duties with most fluid media from ASME Class 150 to Class 600 ratings, plus some special applications.



Centurion® is a high performance sheet jointing, based on glass and aramid fibres with a nitrile (NBR) binder. An anti-stick finish to both surfaces is supplied as standard.

Prime features

Used worldwide on all types of industrial plant and equipment.
Chemically and thermally stable for use up to 440°C.
Recommended for most fluid media, including gaseous oxygen.
Non-pigmented.

Specifications

Meets the requirements of BS7531 Grade X.
BAM approved for use with gaseous oxygen in flange connections of copper, copper alloys or steel at operating conditions up to 100bar and 85°C.

Spiral wound gaskets

Description

Typical applications

Pipelines and pressure vessels on steam, petrochemical, nuclear, marine and hydraulic plant; also heat exchangers

Gaskets are wound in V-section metal strip and a softer filler material. Support rings, inside and/or outside the spiral, improve the gasket's handling, fitting and versatility.

In operation, flange faces are presented with a spiral of alternate metal/filler layers. This sealing arrangement is highly succesful on flanges where temperature, pressure, vibration or flow rates are beyond the capability of conventional jointing materials.

Sheeting, Cut Gaskets and Strips

The range of sheet rubber products spans a wide variety from stock lines to individual specification grades.

These include: Solid, insertions and some sponge materials.

The range of frequently utilised polymers includes: natural, neoprene, nitrile, EP, Viton, Silicone, Butyl, plus severa

Natural Rubber

An elastomer with high strength, high resistance, good tear strength and good resistance to compression set.

Fair to good resistance to acids and alkalis.

Not recommended for use sealing solvents, hydrocarbons or fuels and limited resistance to ozone.

Neoprene Rubber

An elastomer with good flame retardance, reasonable oil resistance and good ozone/oxidation/weathering resistance.

Not recommended for sealing aromatic hydrocarbons, ketones or strong acids

EPDM Rubber

An elastomer with good abrasion resistance, ketone resistance, water resistance and good ozone/oxidation/weathering resistance.

Not recommended for sealing oils, aliphatic or aromatic hydrocarbons and fuels.

Viton Rubber

A fluorocarbon elastomer with good heat resistance, flame retardance, wide chemical resistance, excellent ozone resistance and good resistance to aliphatic and aromatic hydrocarbons.

Not recommended for sealing ketones or alkalis. Limited low temperature performance

Silicone Rubber

An elastomer with excellent heat resistance, high electrical insulation properties, good ozone/oxidation resistance and some acid resistance. Outstanding low temperature performance.

Not recommended for applications requiring high tensile or tear strength. Not suitable for sealing aliphatic or aromatic hydrocarbons. Limited resilience.

General Service 178®

A good quality general purpose gasket material based on a blend of aramid fibre and mineral fibre with a nitrile rubber binder. It conforms to British Standard 7351 Grade X.

It is suitable for sealing oils, fuels, gases, water, low pressure steam and most mild acids and alkalis.

Novaphit SSTC®

The highest quality gasket material based on pure exfoliated graphite with a stainless stell mesh reinforcement and no binders or adhesives. It is easier to cut than the traditional tang

metal reinforced graphite and it is fire-safe approved by Lloyds. It exhibits virtually no creep in service.

It is suitable for sealing high pressure steam, most hydrocarbons, solvents, flammable liquids, fuels, gases, alkalis and many acids.

Furon F510®

A modified PTFE gasket material with outstanding chemical resistance and far better creep resistance than pure PTFE.

Conforms to FDA requirements for use in food and pharmaceutical applications.

It is suitable for sealing most chemicals and as it is stable it will not contaminate any fluid being sealed

Gore-Tex GR Style R

The highest quality PTFE gasket material comprising pure expanded PTFE. It is suitable for sealing nearly all chemicals and it conforms to requirements for use in food and pharmaceutical applications.

It is soft so ideal for sealing weak and damaged flanges.

It has very good creep resistance

Novaform SK®

A high temperature grade designed for sealing exhaust and ducting flanges up to 650oc.

It comprises a high performance fibre reinforced with a substantial "herringbone" weave steel mesh

Nitrile Rubber

An elastomer with excellent resistance to aliphatic hydrocarbons, oils, fuels with good abrasion resistance to compression set.

Not recommended for sealing ketones, aromatic hydrocarbons or acids. Limited ozone resistance.

Semi-metallic gaskets

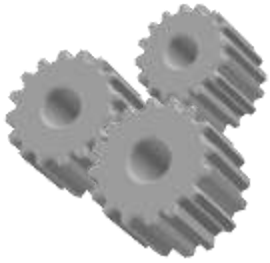
These exceptionally versatile gaskets solve many flange sealing problems for industry. They have either a metal core with sealing materials on both flat surfaces, or a pliable core encased in a thin metallic casing.

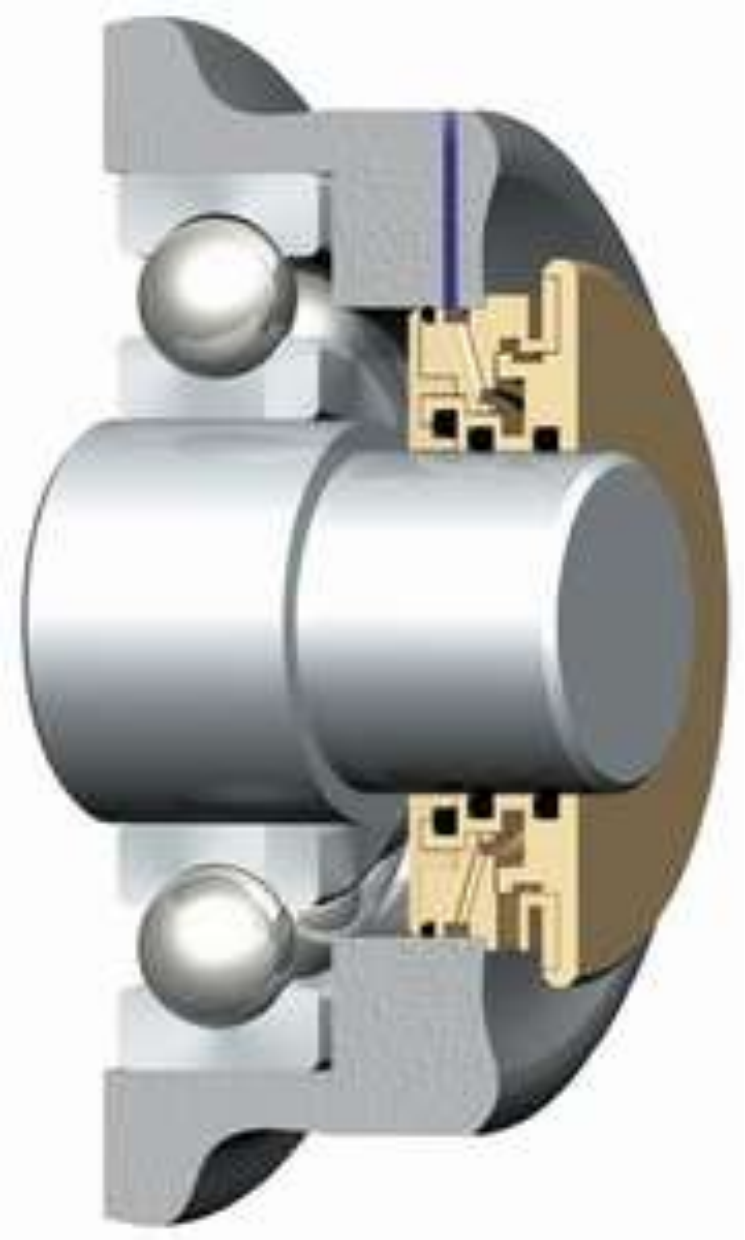
ROTARY SEALS

Every item of rotating plant and equipment - from a humble lawn sprinkler to a jet engine or massive hydroelectric power scheme - relies on rotary sealing systems to keep it working safely and efficiently.

The four main points to consider are:

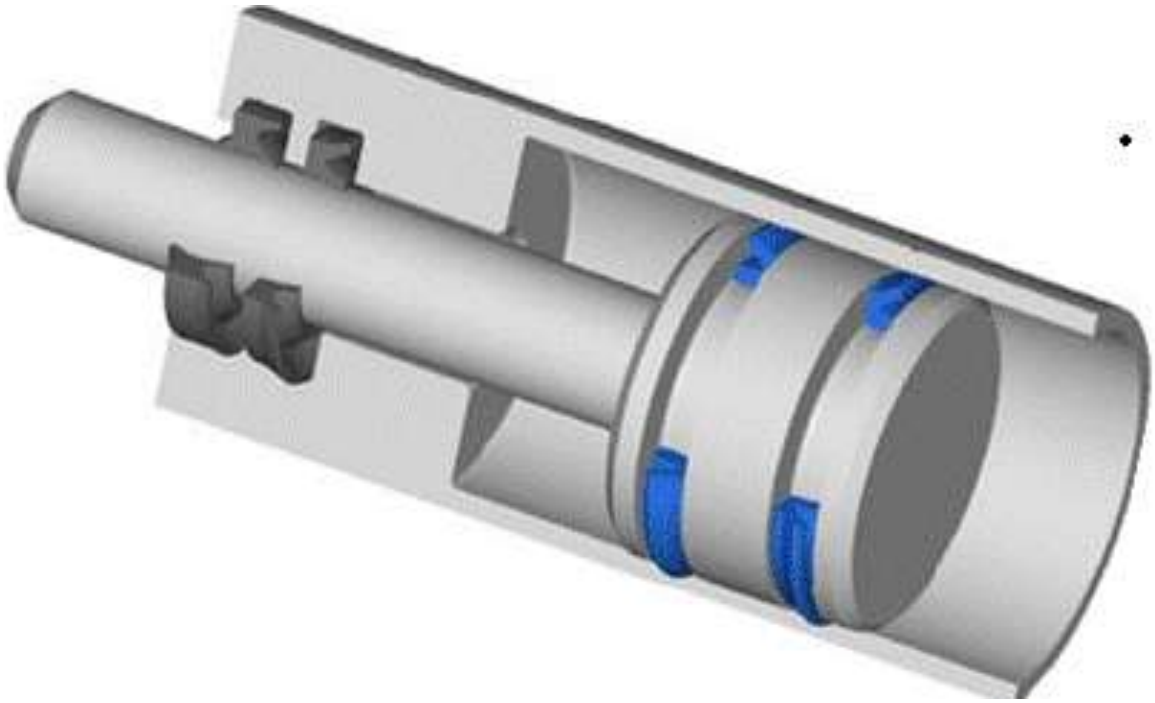
- Bearing protection
- Lubricant retention
- Exclusion of contaminants
- Safeguarding the environment by minimising leakage of media.





'O' RINGS

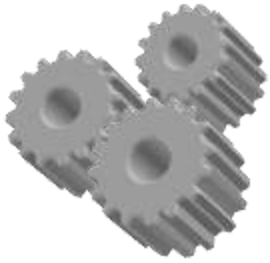
The humble 'O' ring is an exceptionally versatile sealing device. Applications ranging from garden hose couplings to critical aerospace duties make it the world's most popular volume produced seal.



HYDRAULIC SEALING COMPONENTS

Hydraulic sealing components provides the optimum sealing solutions for almost every hydraulic application - from the most accurate instruments and control actuators up to the heaviest forging and extrusion presses.

Each product has been specially developed and proven to give optimum equipment performance with a long trouble-free operating life.

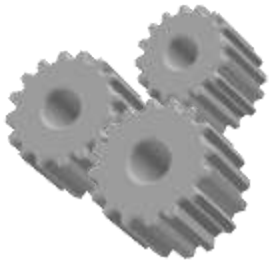


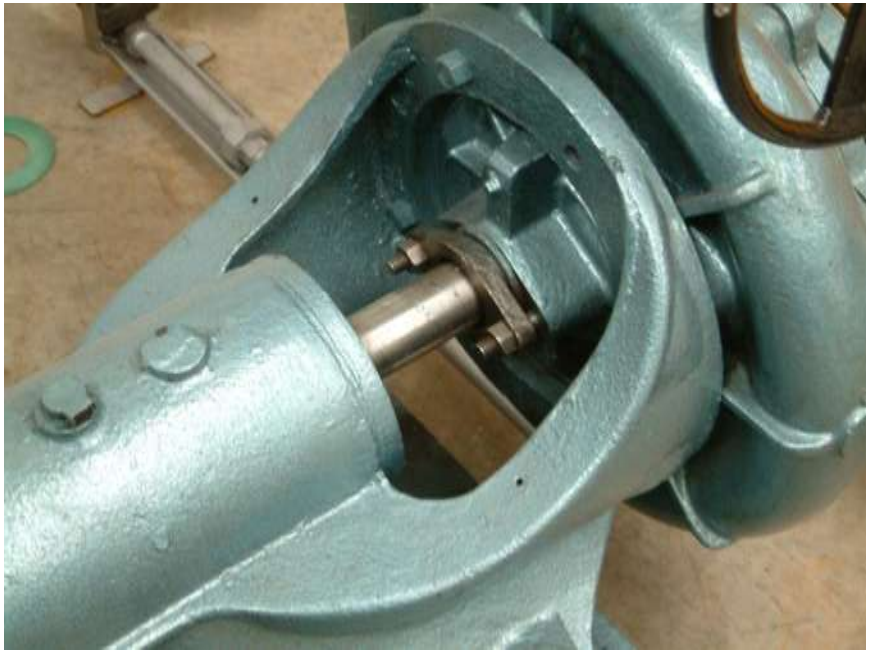
EXPANSION JOINTS & BELLOWS

Most industrial plant and machinery needs flexibility to maintain efficient and safe operation:

Flexible protectors to contain lubricants and shroud exposed mechanisms that operate in aggressive environments.

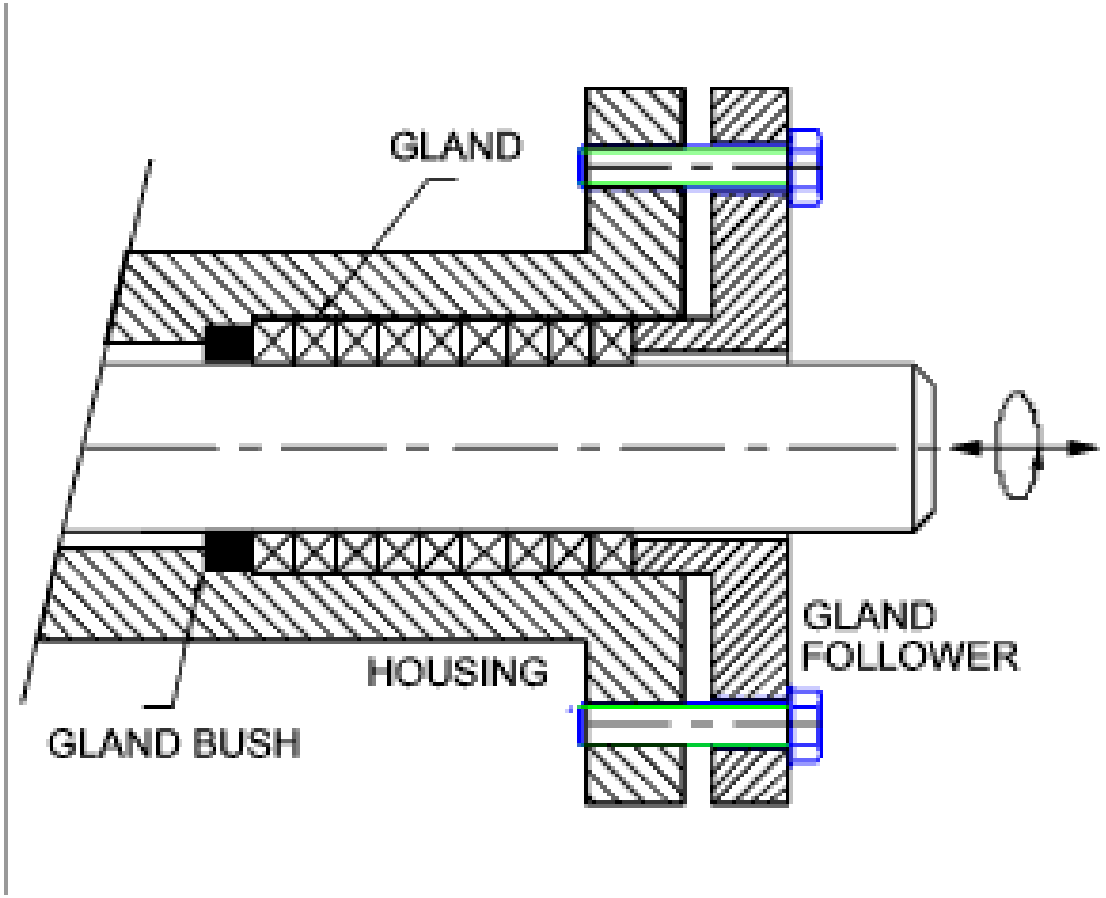
Flexible connectors to absorb thermal movement, isolate vibration and compensate for misalignment in ductwork and piping.

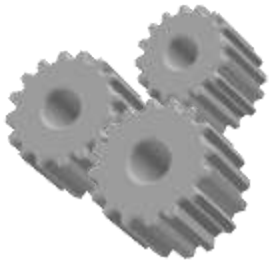


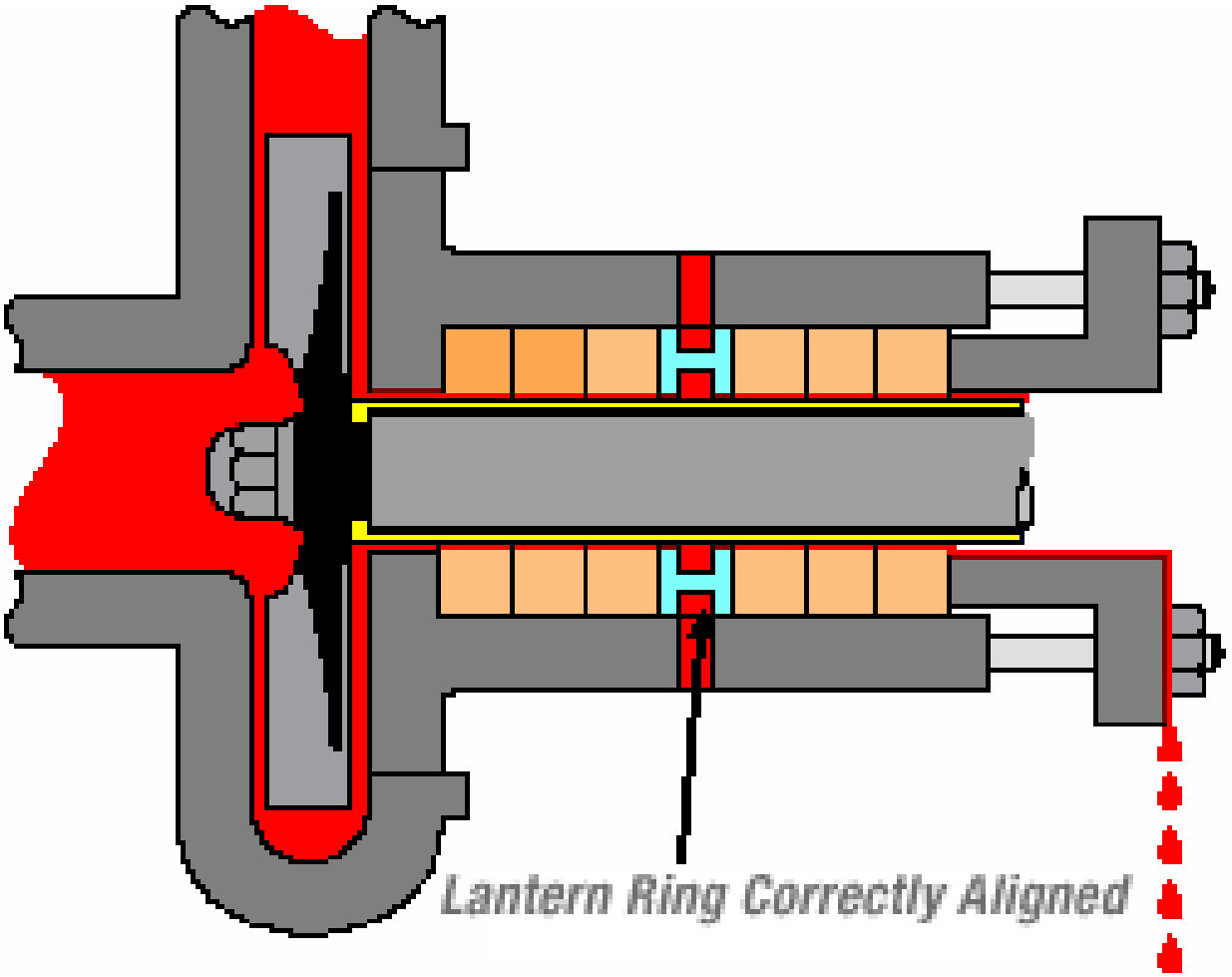


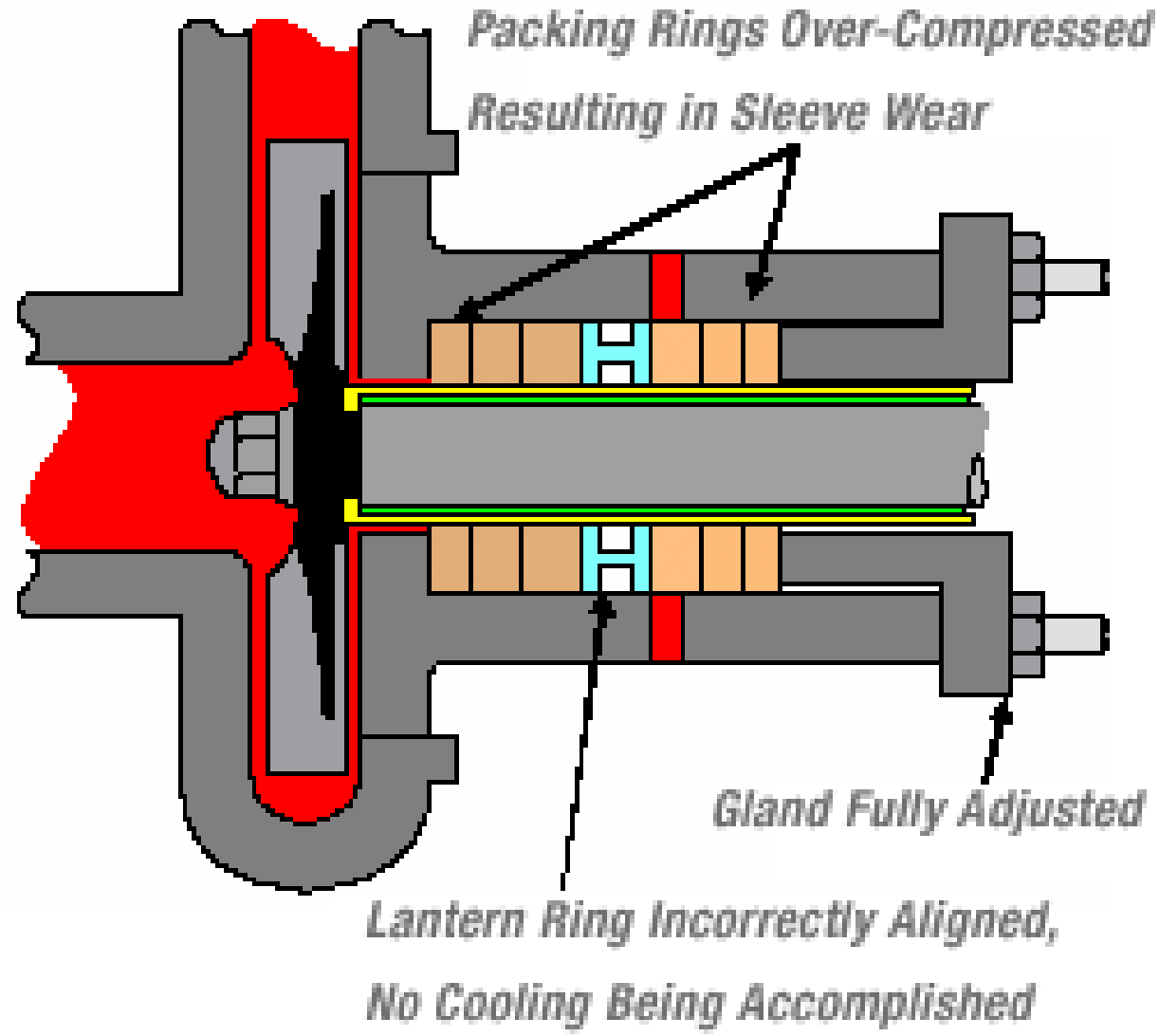
Typical Packed Gland Arrangement

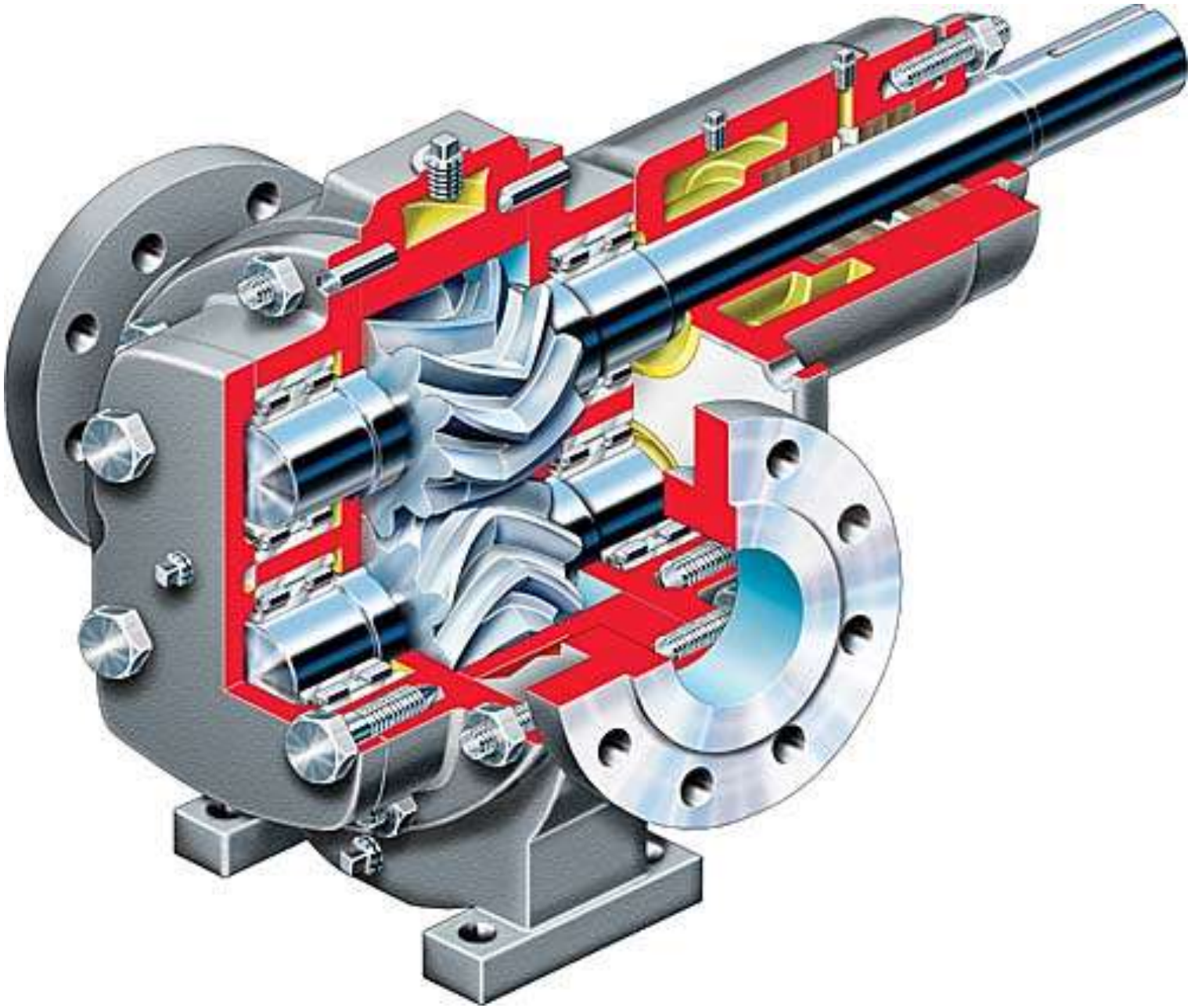
The packed gland is used primarily for sealing process valve shafts (axial movement) and for process pump shafts (rotary movement). The packed gland has provided a low tech. convenient solution throughout the history of engineering. In modern times the packed gland is being replaced by more exotic solutions.

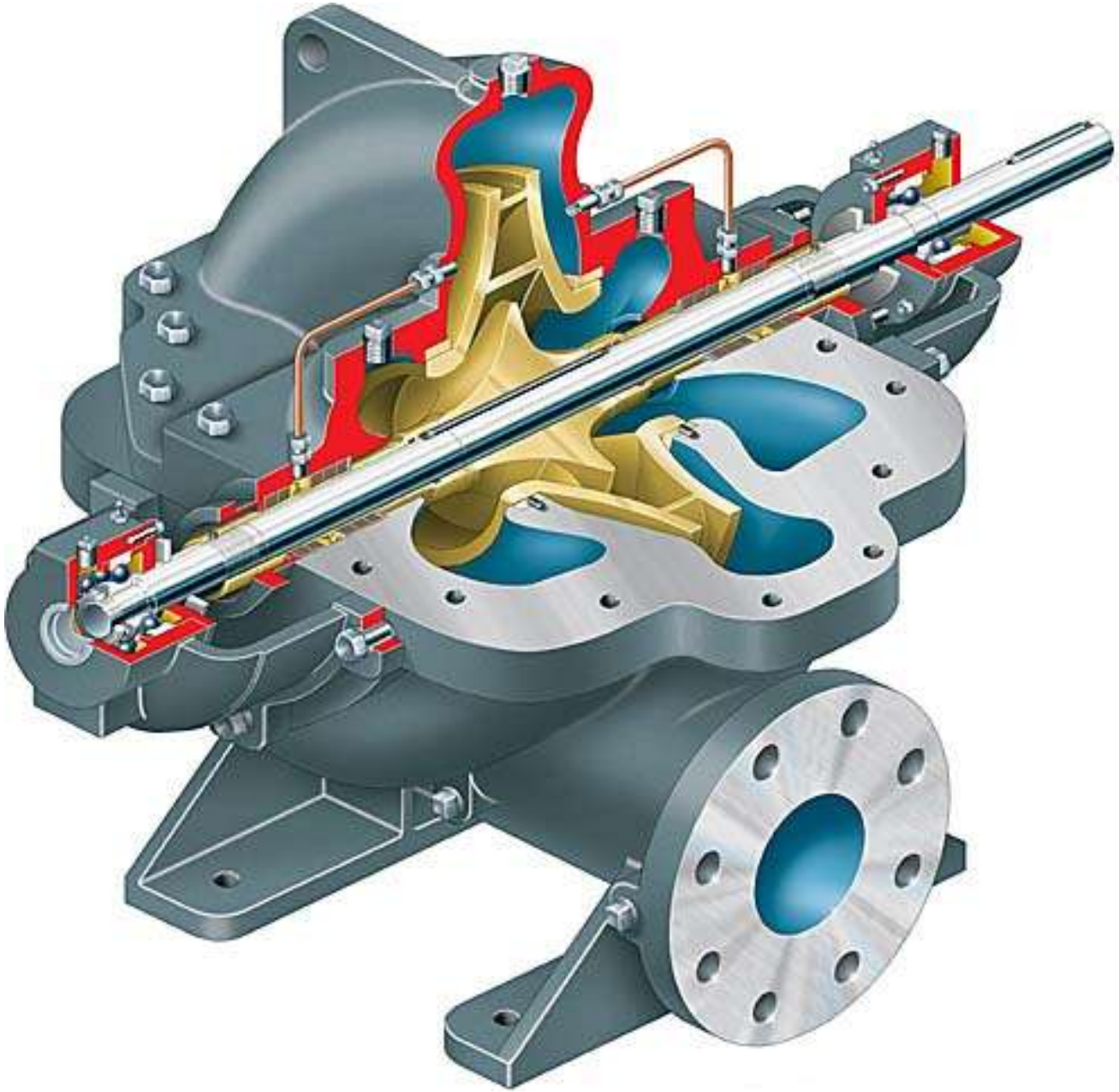


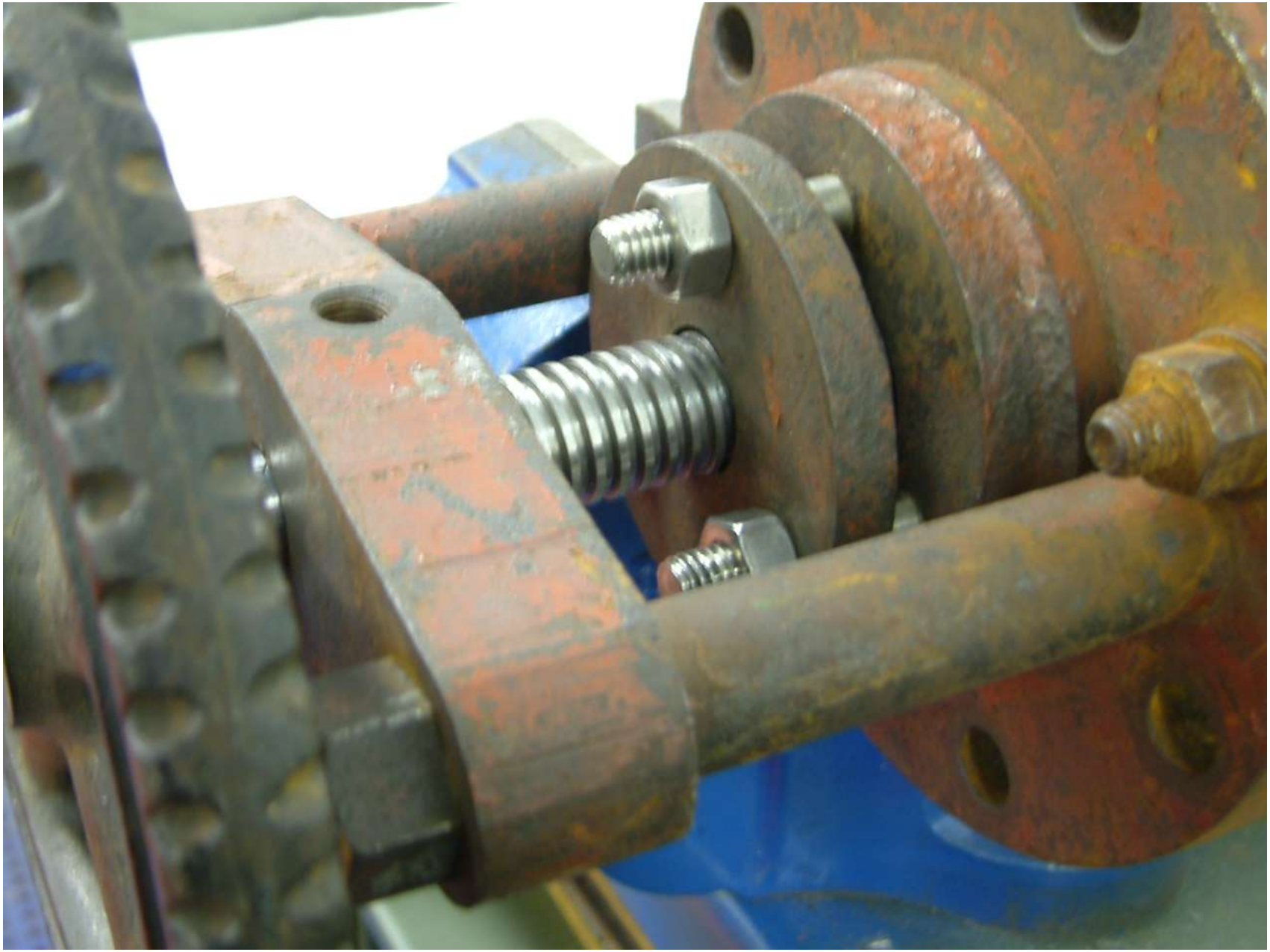



Lantern Ring Correctly Aligned


Packing Rings Over-Compressed
Resulting in Sleeve Wear
Gland Fully Adjusted
Lantern Ring Incorrectly Aligned,
No Cooling Being Accomplished







Universal Pump and Valve Packing - **Pilotsil 8422.**

Pilotsil 8422 is a firm Crossplait constructed packing, fully impregnated with PTFE dispersion and mineral based lubricants which increases the resistance to chemical attack and also aid initial bedding in.

Applications

•Pumps, valves, chemical plants

•Chemicals include: weak acids, weak alkalis, Oils, solvents and water.

Service

Max.Temp. 300^{o}c, Pressure 100 bar, pH 3-13, Speed 10m/s.

Supplied

In square section 3.0mm, 5.0mm, 6.5mm, 8.0mm, in Coils of 15 metres;
9.5mm, 11.0mm, 12.5mm, 14.5mm, 16.0mm, in Coils of 10 metres;
19.0mm and above in Coils of 5 metres.

Cut rings, intermediate and larger sizes or specified lengths available to order.

Graphite for High Temperatures - **Pilotgraph 4001 Super**

Pilotgraph 4001 Super is a ‘Crossplait’ constructed packing, manufactured from exfoliated graphite also incorporating corrosion inhibitors, high thermal conductivity, self lubrication and rapid heat dissipation are major advantages of this packing.

Applications

Rotary, Reciprocating anti–static high temperature pump and valves

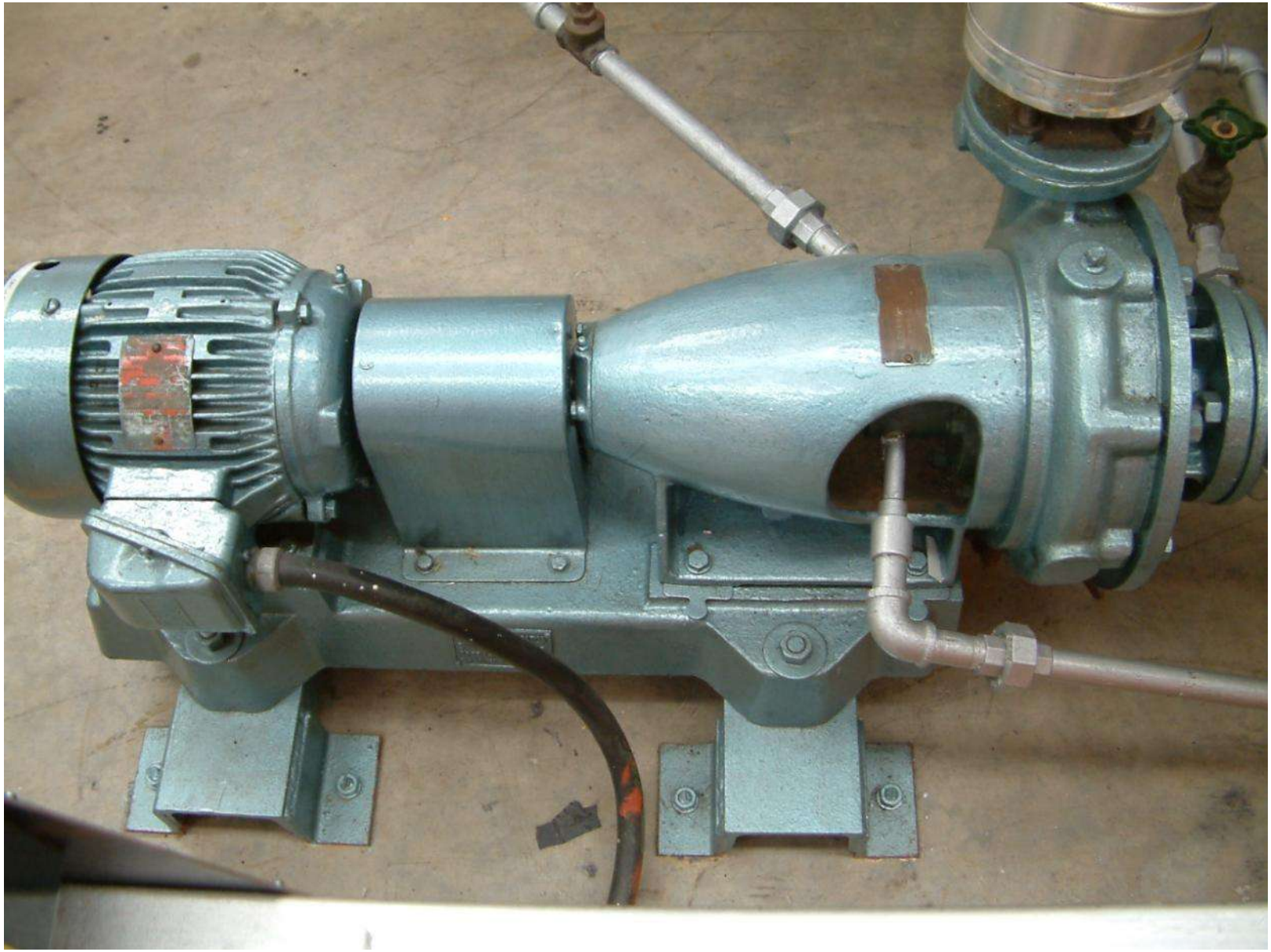
Suitable media steam, water, hot oils, solvents, hydrocarbon, alkalis and acids with the exception of strong oxidising agents

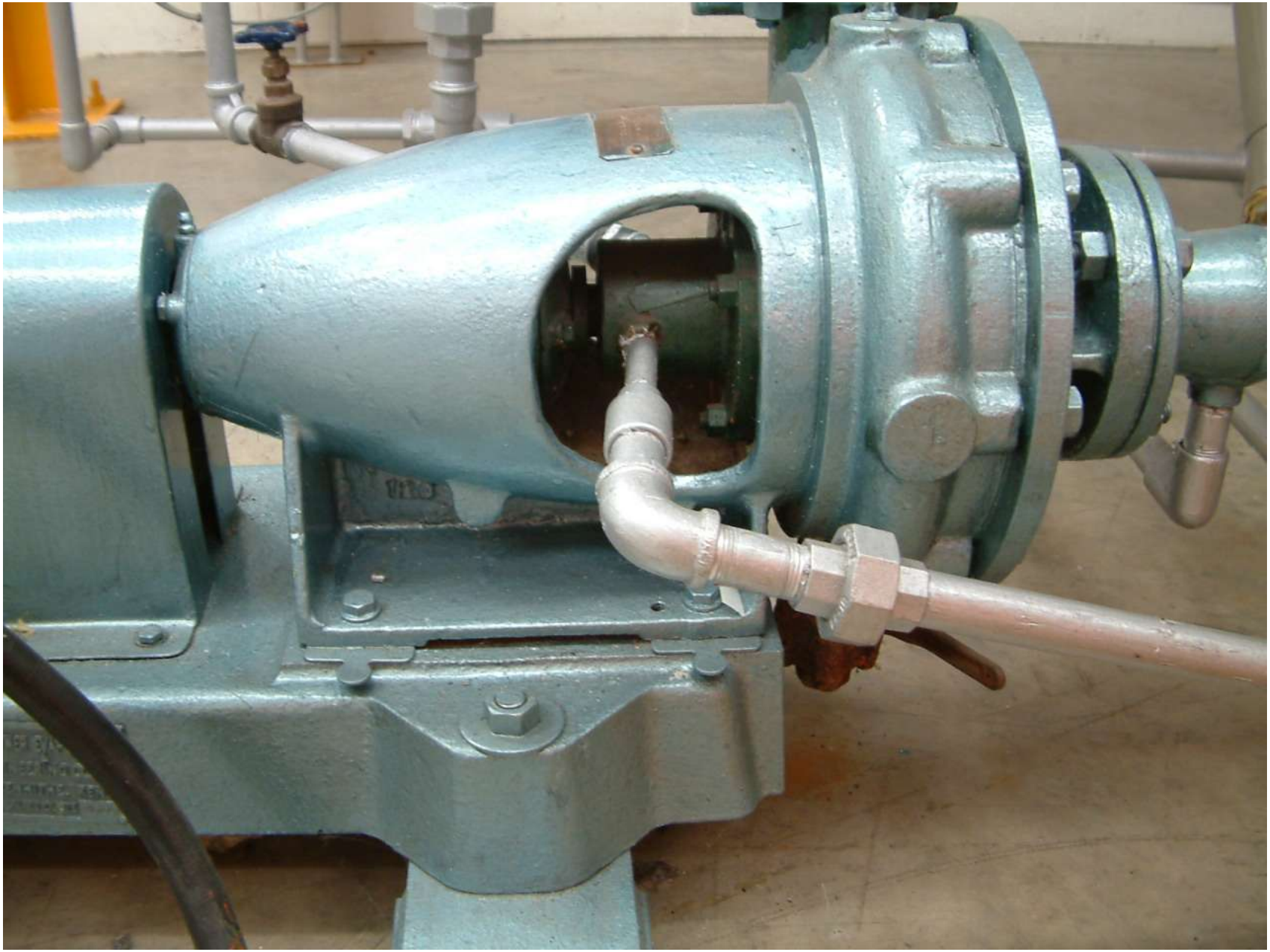
MECHANICAL SEALS

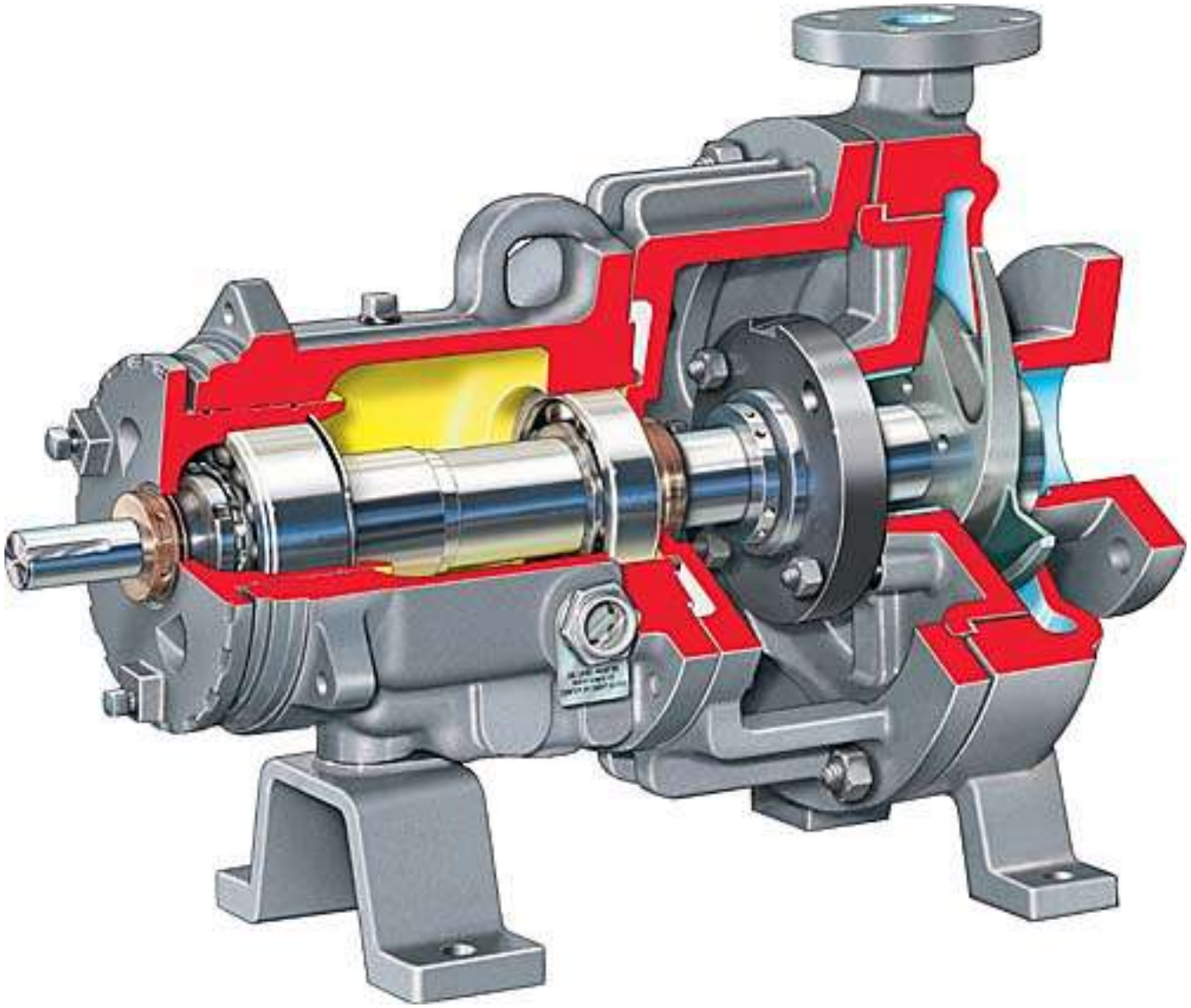
Mechanical seals - from simple single-spring units with a rubber diaphragm, to the largest split cartridge types.
Between them, these are capable of solving shaft sealing problems on rotary equipment such as pumps, compressors, mixers and agitators in many industries:

- Chemical and petrochemical
- Water and waste treatment
- Power generation
- Marine
- Mining
- Pulp and paper processing

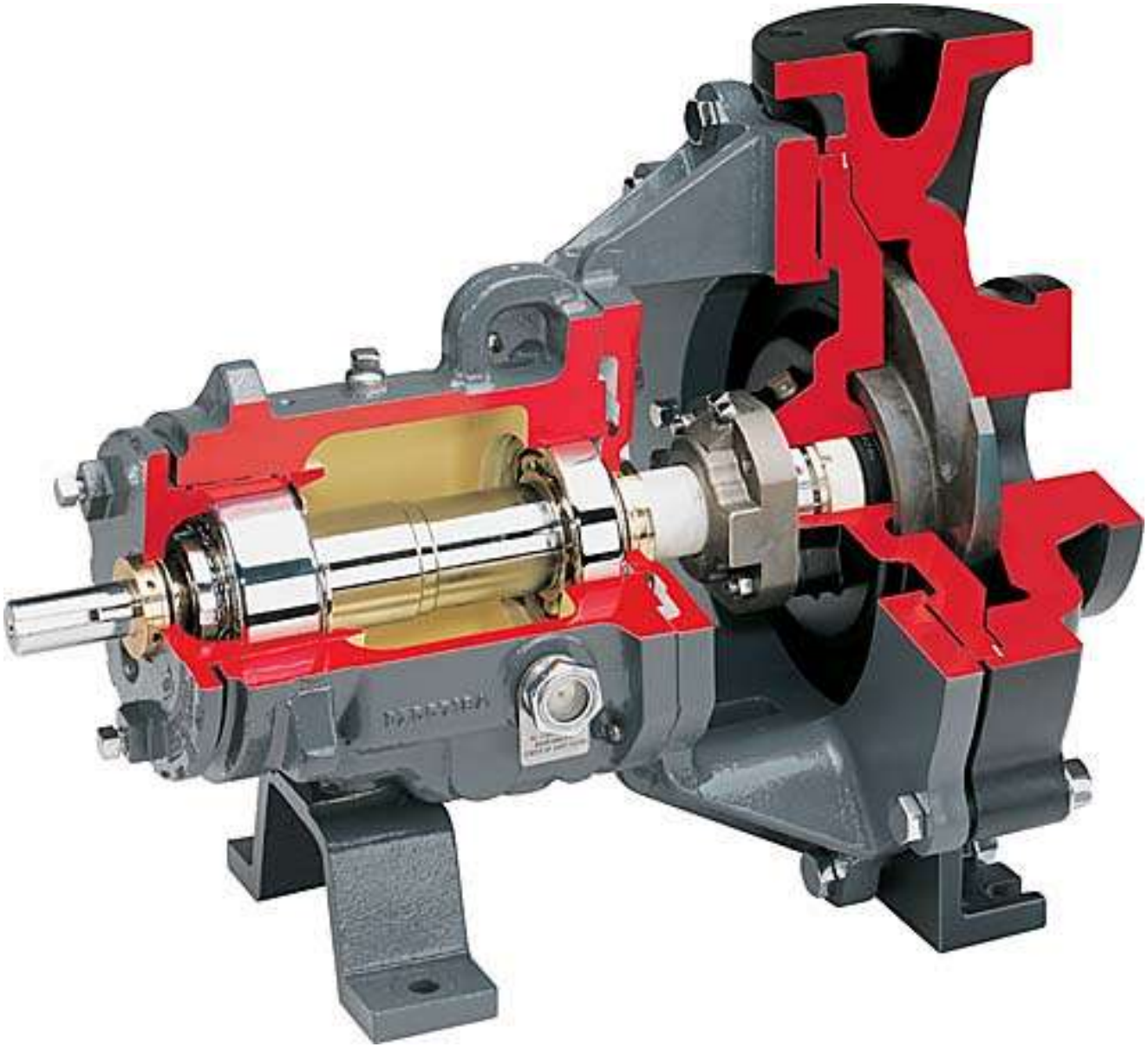
  Food processing (including sugar industry).

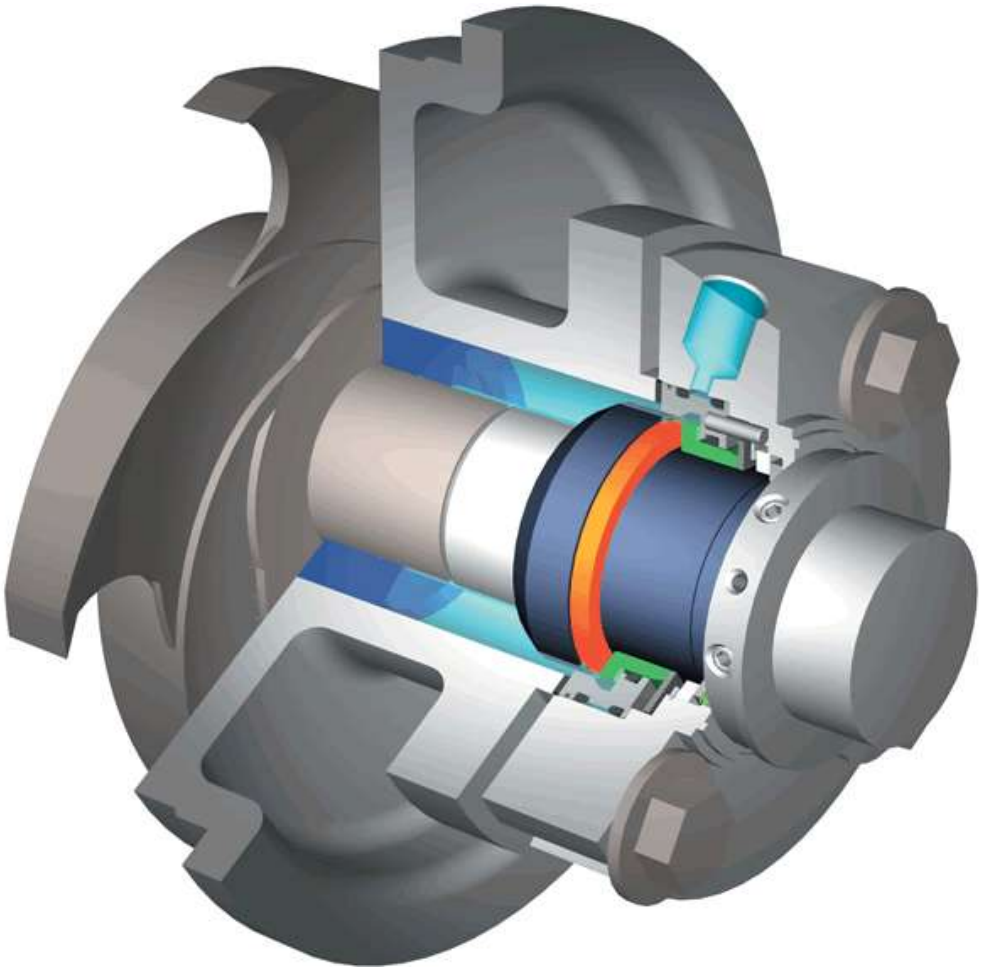


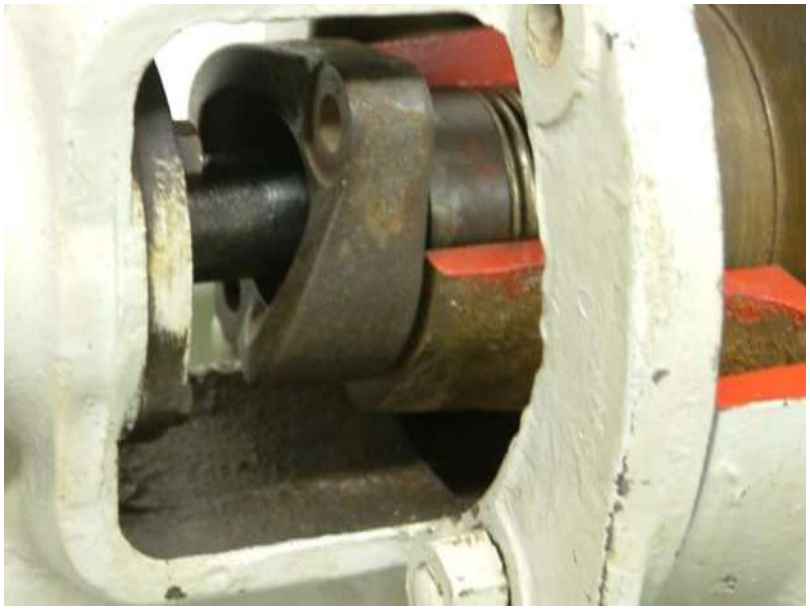


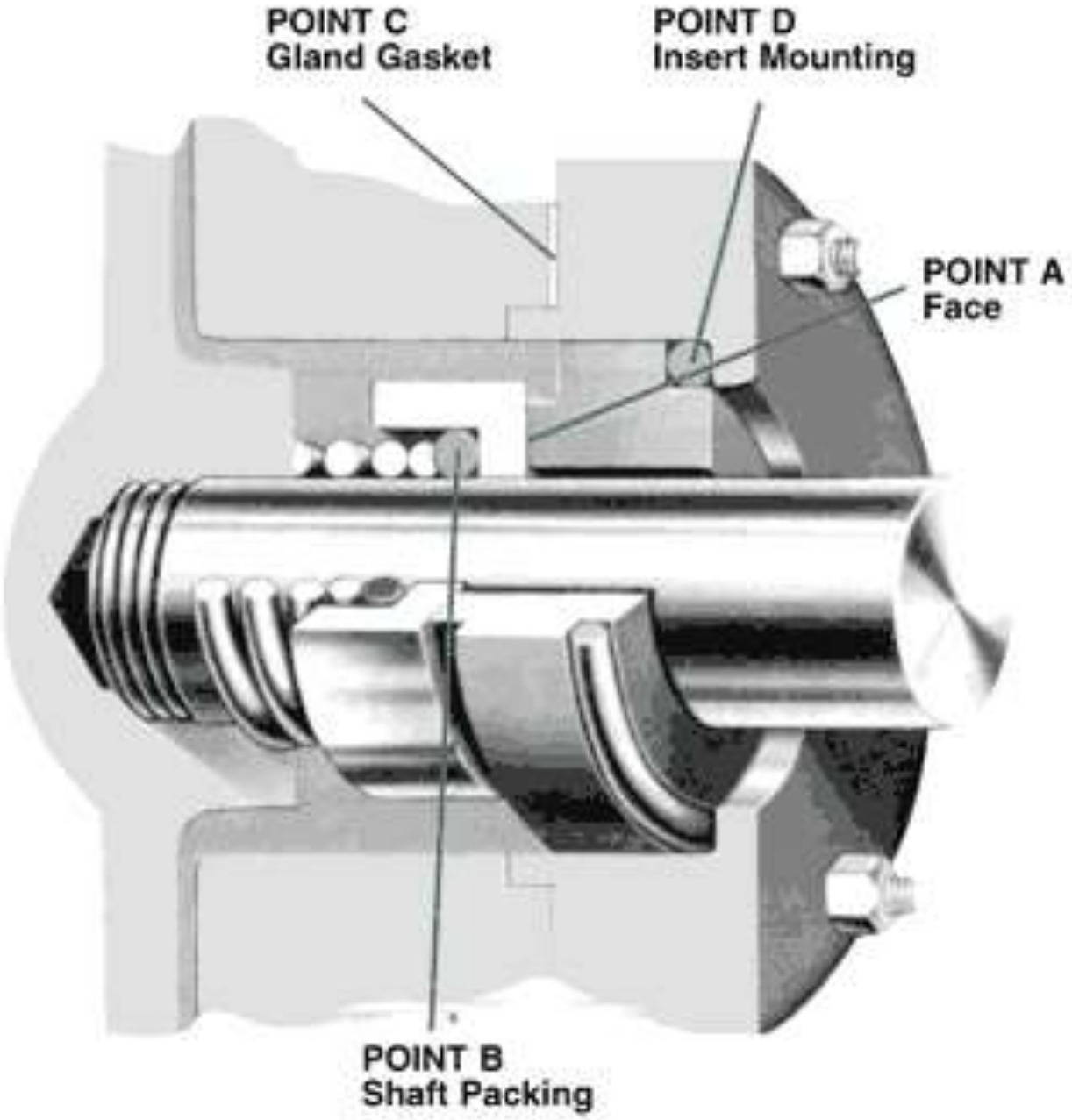


Applications: Acid Transfer, Agriculture, Aquariums, Beverage Processing, Brine, Chemical Processing, Chlor-alkali, Corrosive Services, Food Processing, General Purpose, General Processing Industry, Water Treatment, Hydrocarbon Processing, Organic Chemicals, Pulp and Paper, Pharmaceuticals, Polymers, Petrochemical Processing, Sea Water, Slurries, Solvents








POINT C
Gland Gasket
POINT D
Insert Mounting
POINT A
Face
POINT B
Shaft Packing