

Robco INC.

Mechanical Seals



Engineered Solutions Since 1911



Engineered Solutions Since 1911



This Canadian company was founded in 1911. Today, Robco has operating divisions and warehouses located in all major Canadian cities and employs over 200 people. Robco has established itself as an internationally competitive company and is active worldwide in virtually every major market, including North and South America, the European Economic Community, the Pacific Rim, the Middle East and South Africa.

Robco products are used almost everywhere as components in original equipment and in aftermarket maintenance and repair. The company focuses on the pulp and paper industry, steel and non-ferrous metal processing, mining, oil and gas, power generation, railroads, off-road vehicles, mass transit and marine equipment and pump and valve manufacturers.

ISO 9002 Certified, Robco's commitment to quality and service is stronger than ever. The company continually strives to help equipment manufacturers and end-users in every industrial sector to operate with less down-time and lower maintenance and repair costs. Robco provides leadership in the development of new products and adapts new technology to improve existing products, always focusing on the needs of the customer.

Robco's mechanical seals division manufactures and customizes some of the finest mechanical seals on the market today, as well as being a repair facility for virtually any mechanical seal brand, utilizing the latest technology and state of the art manufacturing equipment. Our seal designs are customer driven to provide the best possible solutions to sealing problems.



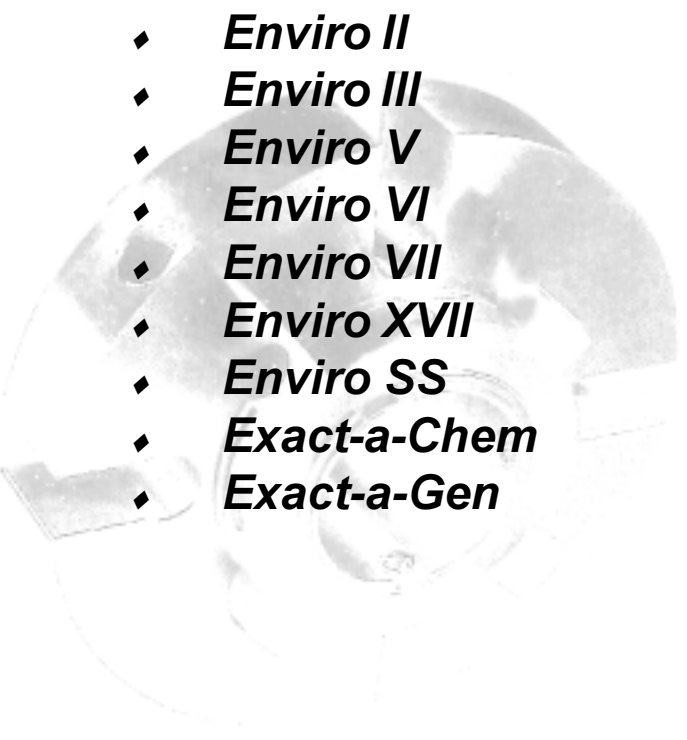


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Robco Enviro line of cartridge seals produces balanced, internally and externally mounted, cartridge and component style, single and double mechanical seals. All styles are available with a convenient, money-saving “in-field” repair kit. These seals can be used on most types of pumps, agitators and mixers and other industrial equipment. Cartridge seals are pre-assembled and pre-set for easy installation in a wide variety of industrial fluids including oils, chemicals, water and slurries.

- 
- A faint, grayscale background image of a mechanical seal assembly is visible behind the list. It shows a circular component with various internal parts and a central shaft area.
- ♦ ***Enviro I***
 - ♦ ***Enviro II***
 - ♦ ***Enviro III***
 - ♦ ***Enviro V***
 - ♦ ***Enviro VI***
 - ♦ ***Enviro VII***
 - ♦ ***Enviro XVII***
 - ♦ ***Enviro SS***
 - ♦ ***Exact-a-Chem***
 - ♦ ***Exact-a-Gen***



A pre-assembled, pre-set cartridge single seal for pumps, agitators, and mixers that can be serviced in your shop with a low cost infield repair kit. Takes the installation procedure from your hands to ours.

FEATURES AND BENEFITS:

- **EASY TO INSTALL**

No measuring is required to install the Enviro I cartridge seal.

- **NO SHAFT OR SLEEVE WEAR**

There are no dynamic "O" rings on the shaft to cause fretting to your equipment and the seal is designed so that all wear parts are disposable.

- **ALIGNMENT**

Stationary seats are resiliently mounted on an "O" ring and allowed to float for maximum face squareness.

- **IMPELLER ADJUSTMENT PUMPS**

The Enviro I can be installed on pumps requiring an impeller adjustment after the seal is installed. Adjustments can be made without removing the seal or dismantling the pump.

- **NO MODIFICATION TO EQUIPMENT**

The Enviro I low profile seal fits all ANSI pumps without modification and is superior in dimensional specifications to any other single cartridge seal commercially available.

- **API 610**

Given pump information the Enviro I can be manufactured to meet the American Petroleum Institute 610 specifications for many petrochemical services.

- **3 WAY CLIPS**

A clip design that not only centres seal but stops axial movement in both directions.

- **"OFF THE SHELF" AVAILABILITY**

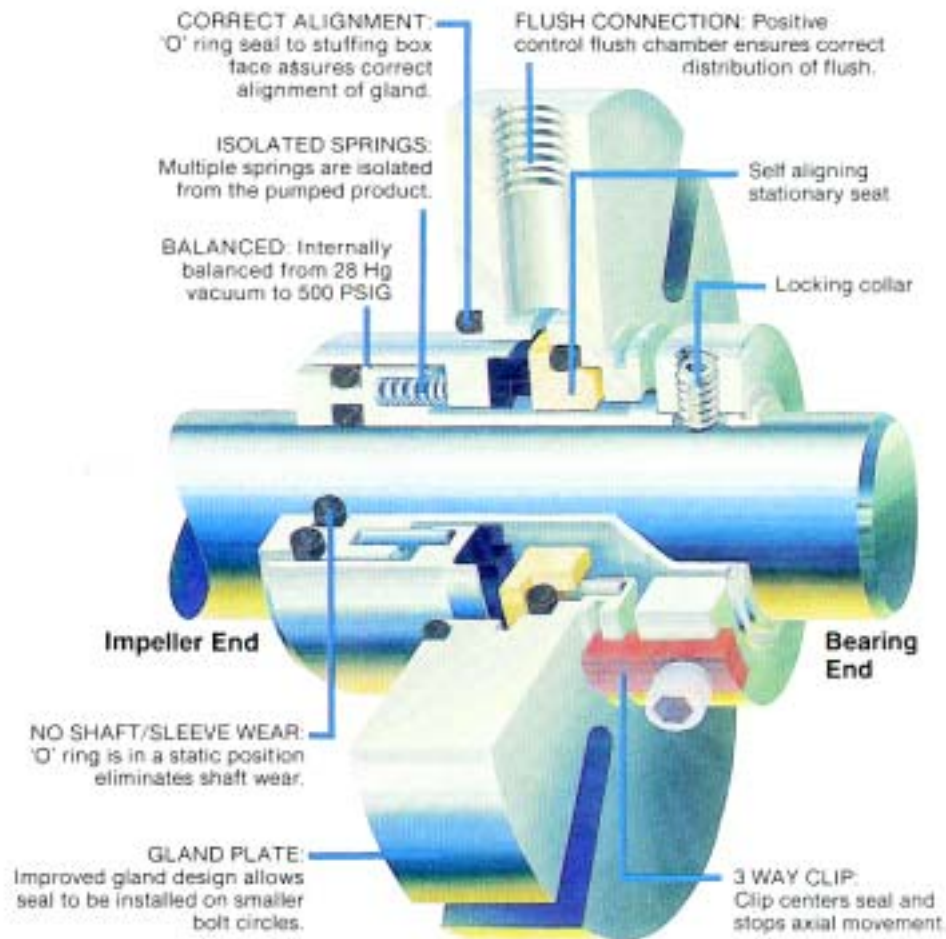
The Enviro I seal is available in 1" to 4". Larger shaft diameters are available on request.

- **PRESSURE TESTED**

All Enviro I seals are pressure tested before leaving our factory.

- **INFIELD REPAIR KIT**

The Enviro I can be repaired by your maintenance man with our low cost repair kit.



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VANCOUVER



EDMONTON



TORONTO



MONTREAL



A pre-assembled, pre-set cartridge single seal for rotating equipment requiring a water or a steam quench capability.

FEATURES AND BENEFITS:

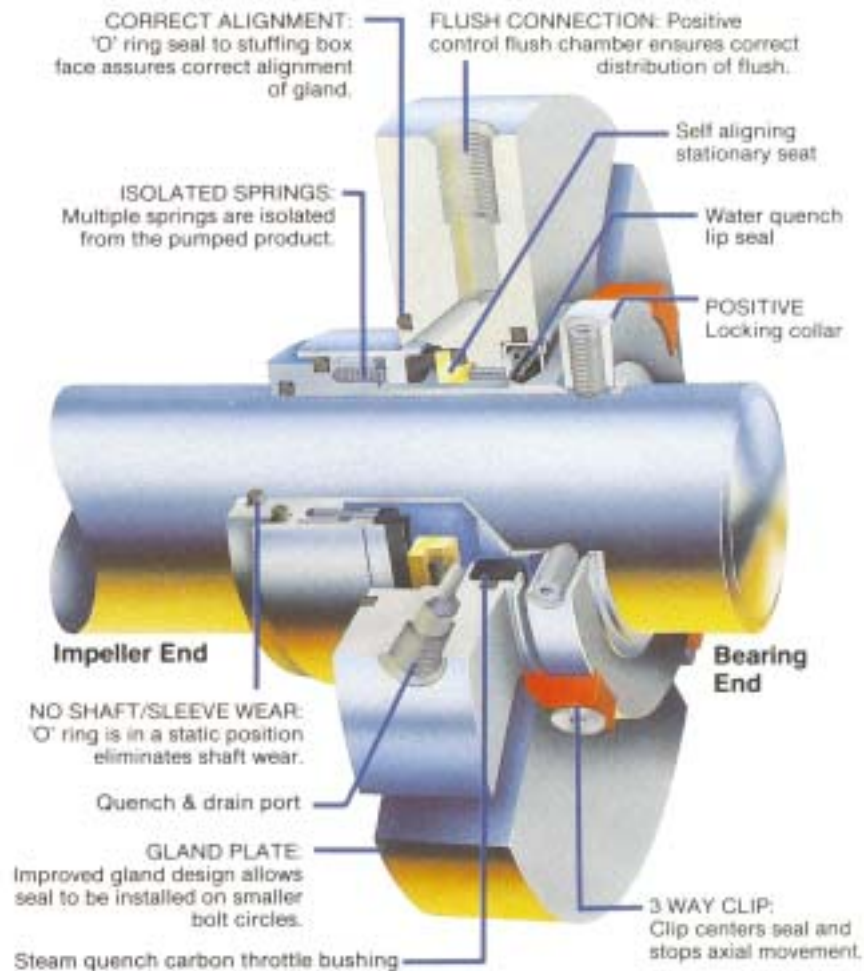
- **EASY TO INSTALL**
No measuring is required to install the Enviro II cartridge seal.
- **NO SHAFT OR SLEEVE WEAR**
There are no dynamic "O" rings on the shaft to cause fretting to your equipment and the seal is designed so that all wear parts are disposable.
- **ALIGNMENT**
Stationary seats are resiliently mounted on an "O" ring and allowed to float for maximum face squareness.
- **IMPELLER ADJUSTMENT PUMPS**
The Enviro II can be installed on pumps requiring an impeller adjustment after the seal is installed. Adjustments can be made without removing the seal or dismantling the pump.
- **NO MODIFICATION TO EQUIPMENT**
The Enviro II low profile seal fits all ANSI pumps without modification and is superior in dimensional specifications to any other single cartridge seal commercially available.
- **API 610**
Given pump information the Enviro II can be manufactured to meet the American Petroleum Institute 610 specifications for many petrochemical services.
- **3 WAY CLIPS**
A clip design that not only centres seal but stops axial movement in both directions.
- **"OFF THE SHELF" AVAILABILITY**
The Enviro II seal is available in 1.00" to 3 3/4". Larger shaft diameters are available on request.

- **PRESSURE TESTED**

All Enviro II seals are pressure tested before leaving our factory.

- **INFIELD REPAIR KIT**

The Enviro II can be repaired by your maintenance man with our low cost repair kit.



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MONTREAL



Enviro III, factory assembled, double balanced cartridge seal for pumps, agitators and mixers that prevents the leakage of toxic, hazardous, corrosive and costly fluids to the atmosphere.

FEATURES AND BENEFITS:

- **EASY TO INSTALL**

No measuring is required to install the Enviro III cartridge seal.

- **NO SHAFT OR SLEEVE WEAR**

There are no dynamic "O" rings on the shaft to cause fretting to your equipment and the seal is designed so that all wear parts are disposable.

- **ALIGNMENT**

Stationary seats are resiliently mounted on an "O" ring and allowed to float for maximum face squareness.

- **IMPELLER ADJUSTMENT PUMPS**

The Enviro III can be installed on pumps requiring an impeller adjustment after the seal is installed. Adjustments can be made without removing the seal or dismantling the pump.

- **NO MODIFICATION TO EQUIPMENT**

The Enviro III low profile seal fits all ANSI pumps without modification and is superior in dimensional specifications to any other single cartridge seal commercially available.

- **API 610**

Given pump information the Enviro III can be manufactured to meet the American Petroleum Institute 610 specifications for many petrochemical services.

- **3 WAY CLIPS**

A clip design that not only centres seal but stops axial movement in both directions.

- **"OFF THE SHELF" AVAILABILITY**

The Enviro III seal is available in 1" to 3 3/4". Larger shaft diameters are available on request.

- **PRESSURE TESTED**

All Enviro III seals are pressure tested before leaving our factory.

- **INFIELD REPAIR KIT**

The Enviro III can be repaired by your maintenance man with our low cost repair kit.

Typical Uses

Starch, sugar, pulp liquors, brine, pulp stock, caustic, sewage, asphalt, tar, heavy oils, industrial waste, toxic/hazardous chemicals, vapours, gases, liquid ammonia, latex, congealing foods, fruit/vegetable juices, glue, paint, molasses, wine, whiskey, liquors, mine slurries.

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TORONTO



MONTREAL

enviro V
cartridge seal***Operating Specifications***

Temperature limit: -40°F to 400°F
-40°C to 205°C

Based on a viton elastomer

Pressure limit to: Vacuum to 17,01 kPa (250 psi)

Shaft speeds to: 3600 rpm

FEATURES AND BENEFITS:

- **UNIQUE HEAVY-DUTY SINGLE SPRING DESIGN RESISTS CLOGGING IN ABRASIVE APPLICATIONS**
- **CARTRIDGE DESIGN FOR EASY INSTALLATION**
- **IN-FIELD REPAIR KIT AVAILABLE TO REDUCE DOWN-TIME**
- **STATIC O-RING ELIMINATES SHAFT/SLEEVE FRETTING**
- **PRESSURE TESTED FOR ASSURANCE BEFORE LEAVING**

Standard Material Construction

Metal Components: 316SS

Face: Chemical Grade Carbon

Optional face: Tungsten Carbide

Elastomer: Viton

Seal: Ceramic, Silicon Carbide

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enviro VI
cartridge seal***Operating Specifications***

Temperature limit: -40°F to 400°F
-40°C to 205°C

Based on a viton elastomer

Pressure limit to: Vacuum to 1500 psi (see chart)

Shaft speeds to: 6000 rpm

FEATURES AND BENEFITS:

- **FACE BALANCED TO WITHSTAND EXTREME PRESSURES**
- **3 WAY CLIPS: CENTERS SEAL TO THE SHAFT-STOP AXIAL MOVEMENT IN BOTH DIRECTIONS DURING SHIPMENT AND INSTALLATION-GUARANTEES EXACT FACE LOAD WHEN INSTALLED**
- **CAN BE MANUFACTURED TO MEET THE API 610 SPECIFICATIONS FOR MANY PETROCHEMICAL SERVICES**
- **CARTRIDGE DESIGN FOR EASY INSTALLATION**
- **PRESSURE TESTED BEFORE LEAVING OUR FACTORY**

Standard Material Construction

Metal Components: 316SS

Face: Chemical and Heat Resistant Carbon Tungsten Carbide

Elastomer: Viton

Seal: Silicon Carbide

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enviro VII
cartridge seal***Operating Specifications***

Temperature limit: -40°F to 205°F
-40°C to 400°C

Based on a viton elastomer

Pressure limit to: Vacuum to 17.01 kPa (250 psi)

Shaft speeds to: 3600 rpm

FEATURES AND BENEFITS:

- **SPRINGS ARE ISOLATED FROM PUMPES PRODUCT TO ELIMINATE CLOGGING**
- **REQUIRES NO STUFFING BOX**
- **ENGINEERED TO WITHSTAND EXTREME SHAFT RUNOUT**
- **STATIONNARY SEAL DESIGN REMOVES MOST VIBRATION/HARMONIC PROBLEMS**
- **CARTRIDGE DESIGNED FOR EASY INSTALLATION**
- **IN-FIELD REPAIR KIT AVAILABLE TO REDUCE DOWN TIME**
- **PRESSURE TESTED FOR ASSURANCE BEFORE LEAVING OUR FACTORY**

Standard Material Construction

Metal Components: 316SS

Stationary

Faces: Chemical Grade Carbon

Optional: Chrome Oxide Coating, Tungsten Carbide

Rotating

Seal: 17.4 PH SS (Heat treated)

Optional: Chrome Oxide Coating

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TORONTO



MONTREAL

enviro XVII
cartridge seal

Operating Specifications

Temperature limit: -40°F to 205°F
-40°C to 400°C

Based on a viton elastomer

Pressure limit to: Vacuum to 34.01 kPa (500 psi)

Shaft speeds to: 3600 rpm

Standard Material Construction

Metal Components: 316SS

Stationary Faces

EV17- Chemical Grade Carbon

Tungsten Carbide

EV17S-Chemical Grade

Carbon Chrome Oxide Coating

Rotating Seats

EV17-Ceramic Silicon Carbide

EV17S-17-4PH SS

(Heat Treated) Chrome

Oxide Coating

FEATURES AND BENEFITS:

- **STATIONARY SEAL DESIGN ELIMINATES MOST VIBRATION OR HARMONIC PROBLEMS**
- **ENGINEERED TO HANDLE ABOVE NORMAL SHAFT MOVEMENT**
- **HYDRAULICALLY BALANCED FOR ADJUSTMENT TO PRESSURE SURGES**
- **SPRINGS ARE ISOLATED FROM PUMPED PRODUCT TO ELIMINATE CLOGGING**
- **REQUIRES NO STUFFING BOX (EXTERNALLY MOUNTED)**
- **IN-FIELD REPAIR KIT AVAILABLE TO REDUCE DOWN-TIME**
- **CARTRIDGE DESIGNED FOR EASY INSTALLATION**
- **PRESSURE TESTED FOR ASSURANCE BEFORE LEAVING OUR FACTORY**

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TORONTO



MONTREAL



Based on the time proven experience of the diaphragm bellows seal, a pre-assembled, pre-set unbalanced single seal now available in a cartridge design.

FEATURES AND BENEFITS:

- **EASY TO INSTALL**

No measuring is required to install the Enviro SS cartridge seal.

- **NO SHAFT OR SLEEVE WEAR**

There are no dynamic "O" rings on the shaft to cause fretting to your equipment and the seal is designed so that all wear parts are disposable.

- **ALIGNMENT**

Stationary seats are resiliently mounted on an "O" ring and allowed to float for maximum face squareness.

- **NO MODIFICATION TO EQUIPMENT**

The Enviro SS low profile seal fits all ANSI pumps without modification and is superior in dimensional specifications to any other single cartridge seal commercially available.

- **IMPELLER ADJUSTMENT PUMPS**

The Enviro SS can be installed on pumps requiring an impeller adjustment after the seal is installed. Adjustments can be made without removing the seal or dismantling the pump.

- **3 WAY CLIPS**

A clip design that not only centres seal but stops axial movement in both directions.

- **"OFF THE SHELF" AVAILABILITY**

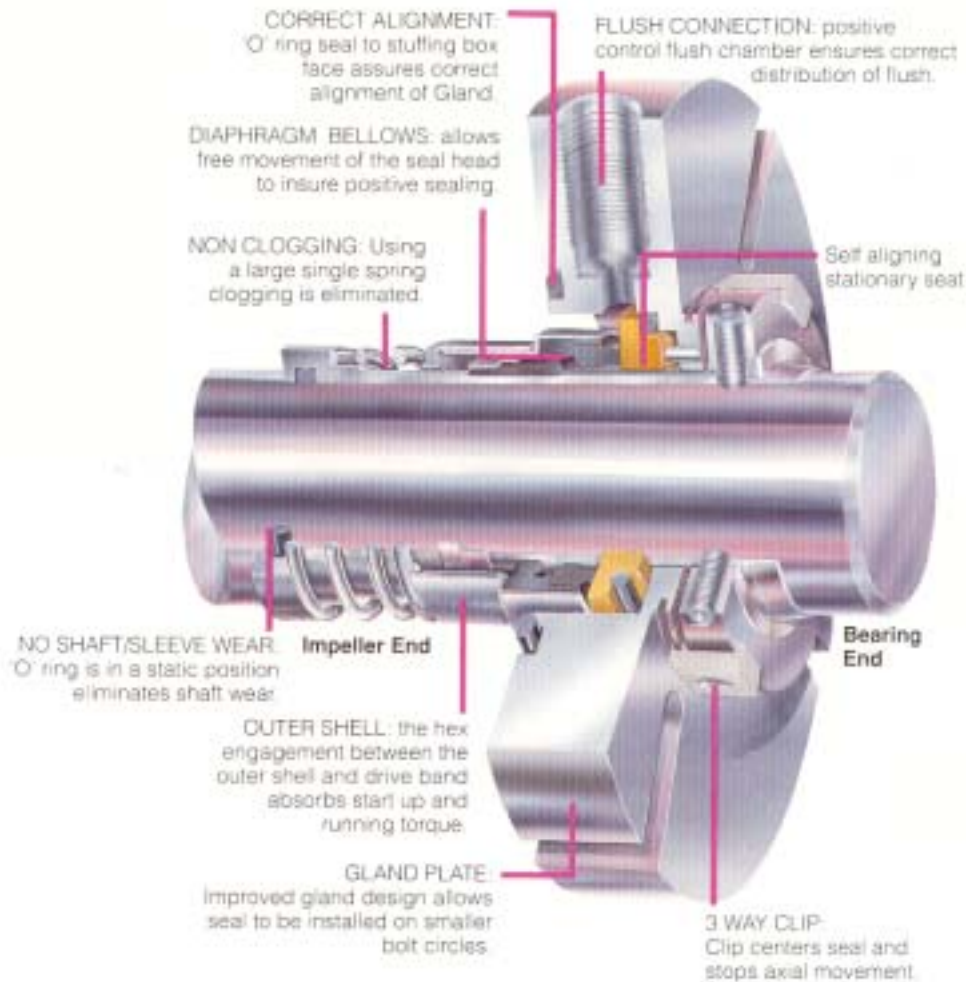
The Enviro SS seal is available in shaft sizes from 1" to 2.5" from stock.

- **PRESSURE TESTED**

All Enviro SS seals are pressure tested before leaving our factory.

- **INFIELD REPAIR KIT**

The Enviro SS can be repaired by your maintenance man with our low cost repair kit.



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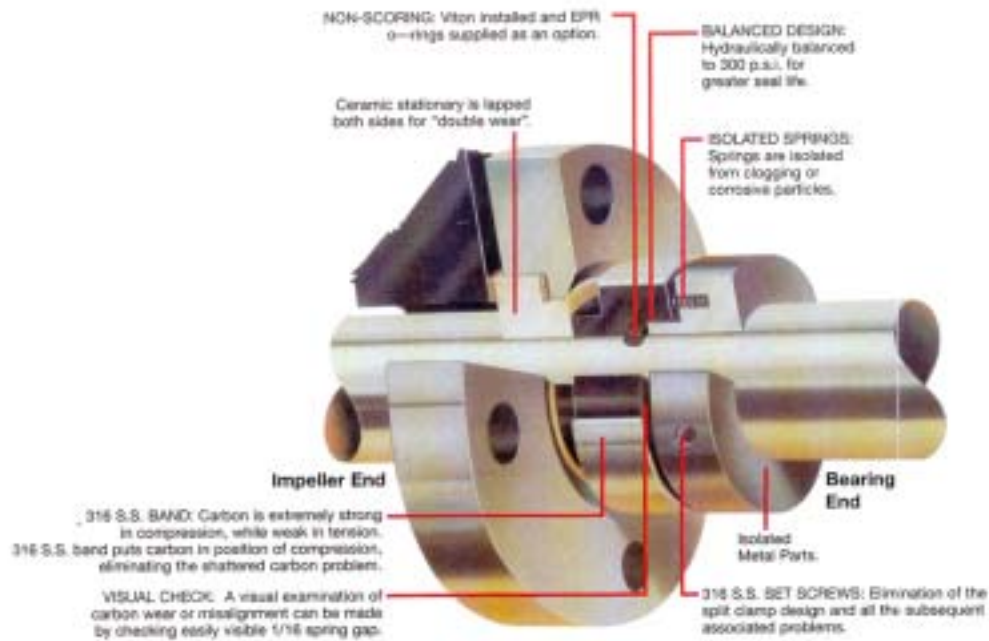
MONTREAL



A superior quality “off-the-shelf” balanced external seal for corrosive services.

FEATURES AND BENEFITS:

- **LOW COST REPLACEMENT SEALS MADE FROM EXPENSIVE EXOTIC MATERIALS.**
- **THE EXACT-A-CHEM SEAL IS DESIGNED FOR USE IN CORROSIVE FLUIDS WHICH READILY ATTACK THE METAL PARTS OF CONVENTIONAL SEALS. WITH THE EXACT-A-CHEM NO METAL PARTS ARE IN CONTACT WITH THE FLUID BEING PUMPED.**
- **EASY INSTALLATION - EXACT-A-CHEM COMES PRE-ASSEMBLED: SIMPLY SLIDE ON UNTIL FACES MATE, TIGHTEN SET SCREWS AND REMOVE CLIPS.**
- **FACES CAN BE CLEANED AND RESET TIGHT ON SHAFT, AS SEAL IS EXTERNAL TO THE STUFFING BOX**
- **THE EXACT-A-CHEM CAN BE REPAIRED BY YOUR MAINTENANCE MAN WITH OUR LOW COST “INFIELD” REPAIR KIT**
- **LOCATED CLOSER TO SUPPORT BEARING - LESS WHIP**
- **THE EXACT-A-CHEM CAN BE INSTALLED ON PUMPS WHERE THE STUFFING BOX IS TOO SHALLOW TO ACCEPT A CONVENTIONAL INTERNAL SEAL**



Installation Procedures

1. Slide stationary seat, gland and pre-assembled rotary unit over the shaft.



2. Stationary and gland are positioned against stuffing box face and nuts tightened.



3. Slide rotary unit until faces mate. Tighten set screws and remove clips.



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MONTREAL

exact·a·gen

An “off-the-shelf” balanced internal seal for fuels, oils, chemicals, water and slurries. A general service seal for the maintenance man.

FEATURES AND BENEFITS:

- **NO FRETTING**

The Exact-A-Gen seal will not fret sleeves or shafts. The “O” ring on the shaft is static and should any fretting occur from the dynamic “O” ring, it will be to the carbon holder, the least expensive part of the seal.

- **EASY TO INSTALL**

One installation dimension is common to all Exact-A-Gen seals, regardless of shaft size.

- **REPAIR KIT**

We supply an “infield” repair kit for a fraction of the original cost. You don’t have to send back seals for repair or exchange - this way it costs you less.

- **FITS ALL ANSI PUMPS**

Replaces most seals or packing without pump or gland modification.

- **ISOLATED SPRINGS**

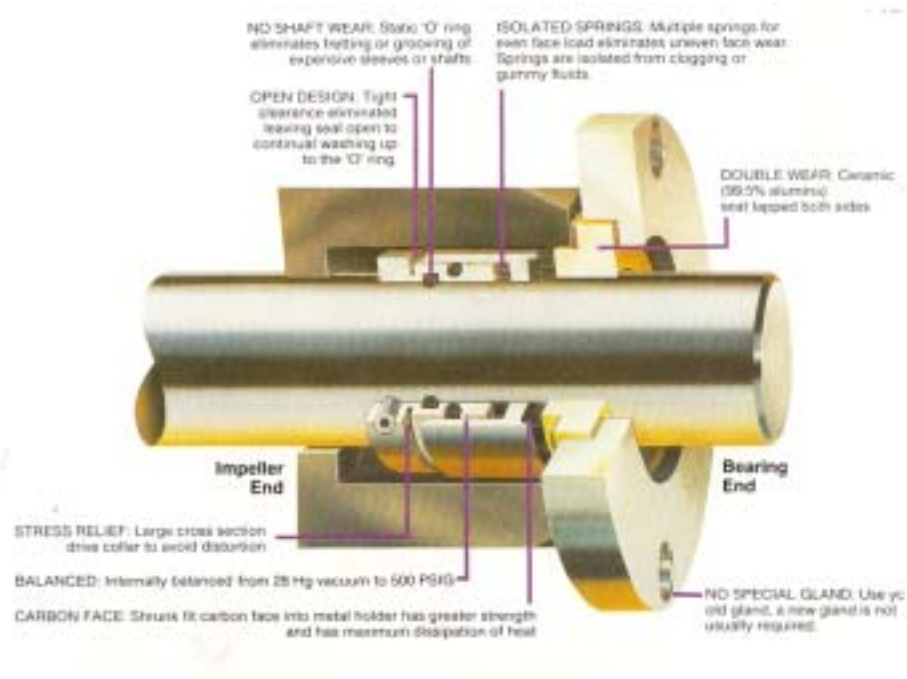
Springs are out of the fluid being pumped, isolated from clogging particles suspended in the product.

- **NON-CLOG**

Exact-A-Gen has eliminated unnecessary tight clearances leaving the seal open to continual washing by the product up to the “O” ring.

- **DRIVE COLLAR**

Exact-A-Gen seal has a large cross section drive collar to eliminate distortion and static “O” ring leakage.



Installation Procedures

1. Lay straight edge across stuffing box face and mark shaft with blueing.



2. Installation dimension is referenced from scribed line toward impeller (back of rotary is always 1/16" from stationary face).



3. Slide gland, stationary face then seal on to shaft. Align outboard end of rotary on scribed line. Tighten set screws.



4. Assemble and tighten gland finger tight, then turn one more flat with wrench. Stationary seat will compress seal to correct working length.



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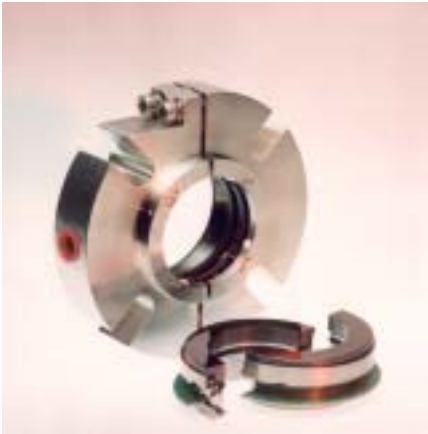
MONTREAL

Founded 40 years ago as a mechanical seal repair facility, PPC Mechanical Seals has grown into a manufacturer of some of the finest mechanical seals on the market today, utilizing the latest technology and state of the art manufacturing equipment.

- 
- A faint, grayscale background image of a mechanical seal assembly is visible behind the list of products. It shows a central shaft with a seal ring and various components like a bellows and a cartridge.
- ◆ ***1200S Split Single Mechanical Seal***
 - ◆ ***2400S Split Double Mechanical Seal***
 - ◆ ***7000G Gas Lift-Off Seal***
 - ◆ ***Bearing Isolators***
 - ◆ ***Ultra Seal 150 Metal Bellows Seal***
 - ◆ ***Ultra Seal 151 Metal Bellows Cartridge Seal***
 - ◆ ***Ultra Seal 780 High Temperature Metal Bellows Seal***
 - ◆ ***Ultra Seal 2000 Double/Tandem Metal Bellows Cartridge Seal***
 - ◆ ***Teflon Bellows Seals***
 - ◆ ***1500ERB Cartridge Bellows Seal***
 - ◆ ***Cryogenic Ultraseals***

1200S SPLIT SEAL

***This new 1200s split seal is ready to
run in 15 minutes or less!***

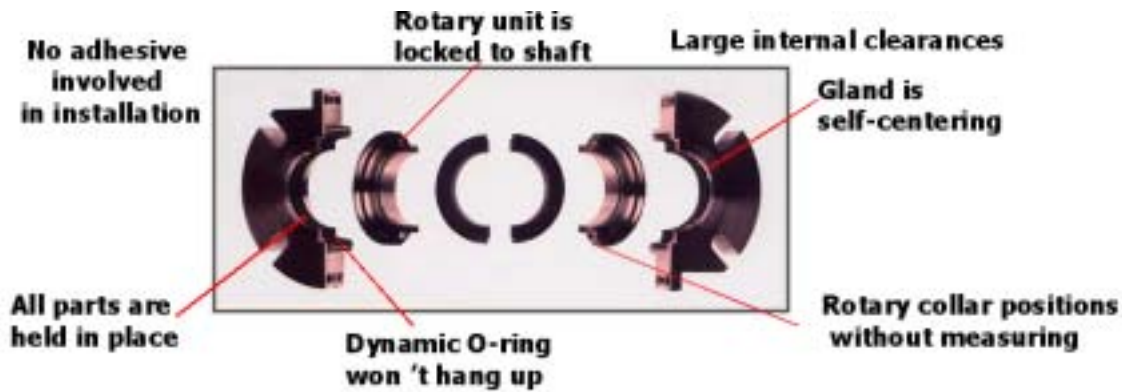


IDEAL FOR:

- ◆ *Pulp & Paper*
- ◆ *Power Generation*
- ◆ *Wastewater Treatment*
- ◆ *Mining*
- ◆ *Grain Processing*
- ◆ *Pipeline*
- ◆ *Water systems*
- ◆ *Petroleum/ Chemical (non-hazardous)*

FEATURES AND BENEFITS:

- **INSTALL WITHOUT DISMANTLING EQUIPMENT**
- **REDUCED MAINTENANCE COST**
- **WON'T WEAR OR SCORE SHAFT SLEEVE**
- **NO PACKING GLAND TO RE-TIGHTEN**
- **OPERATES WITH LESS LEAKAGE THAN PACKING**
- **LASTS LONGER THAN PACKING**
- **1200S IS FIELD REPAIRABLE**
- **MINIMIZED HEAT GENERATION DUE TO BALANCED DESIGN**
- **REPAIR KITS ARE AVAILABLE FOR FIELD OF ALL 1200S SEALS.**



Simple Installation!

Installs with no special training or skills in 15 minutes or less.



1. Position and secure rotary unit to shaft.



2. Place gland halves around rotary unit and fasten together.



3. Bolt gland to pump. Connect flush if required.

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VANCOUVER



EDMONTON



TORONTO



MONTREAL

2400S SPLIT DOUBLE SEAL

*The protection and reliability of a double seal ...
with the convenience of a split seal*



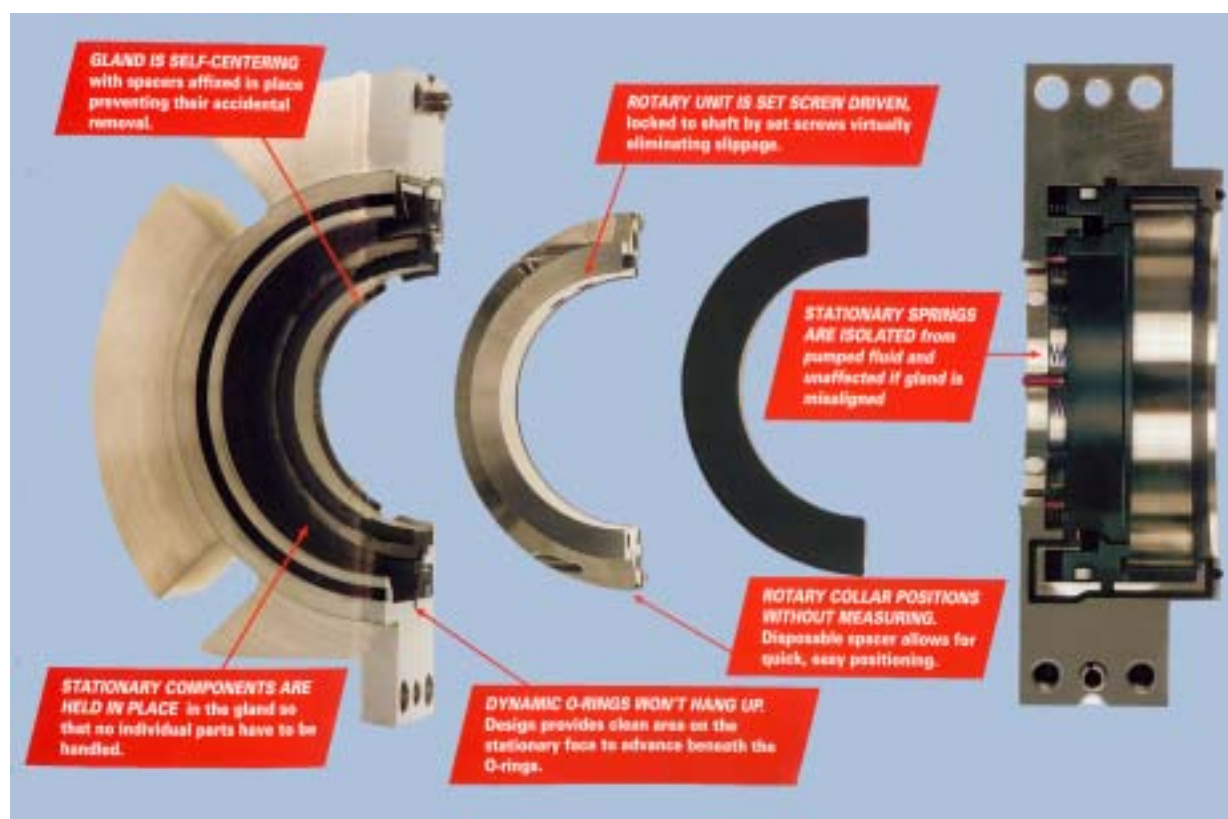
IDEAL FOR:

- ◆ *Pulp & Paper*
- ◆ *Power Generation*
- ◆ *Food Processing*
- ◆ *Wastewater Pumping*
- ◆ *Breweries*
- ◆ *Mining*
- ◆ *Corn Processing*
- ◆ *Petroleum/ Chemical (nonhazardous)*

FEATURES AND BENEFITS:

- **2400S IS A SPLIT SEAL**
Equipment does not have to be dismantled to install the seal.
- **IT'S A DOUBLE SEAL**
Pumps and mixers can be sealed without having to put large quantities of water into the process utilizing a plan 54 flush.
- **UNIQUE "STACKED" FACES**
Allow it to be utilized even in the smaller ANSI pumps without modification.
- **ALIGNMENT PINS**
Indicate when correct alignment of the seal faces has been achieved. These pins also serve a dual role as wear pin indicators.
- **2400S IS COMPETITIVELY PRICED**
With ordinary double cartridge mechanical seals.
- **YOU DON'T HAVE TO PULL THE PUMP ANYMORE**
With obvious savings in labor, downtime, pump shop time, inventory, etc.
- **2400S IS FIELD REPAIRABLE**
With a repair kit. The seal's initial cost is comparable to a regular double cartridge, but the repairs thereafter significantly reduce seal costs.

- **2400S USES DIRECT SINTERED, GRAPHITE LOADED SILICON CARBIDE**
As its standard rotary face. The seal also offers Aflas elastomers as the standard off the shelf.
- **COOLING IS GREATLY ENHANCED**
Because the faces are all within close proximity and totally immersed in the barrier fluid. This also improves seal life.
- **2400S CAN HANDLE MORE RUN-OUT**
And misalignment than conventional double cartridge seals.
- **NO ADHESIVE INVOLVED IN INSTALLATION**
Which speeds and simplifies the procedure.
- **WORKS GREAT IN A VACUUM**
- **WORKS WELL ON HORIZONTAL OR VERTICAL SHAFTS**
- **INSTALLS IN 15 MINUTES OR LESS**
With no special training or skills.



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TORONTO



MONTREAL

7000G

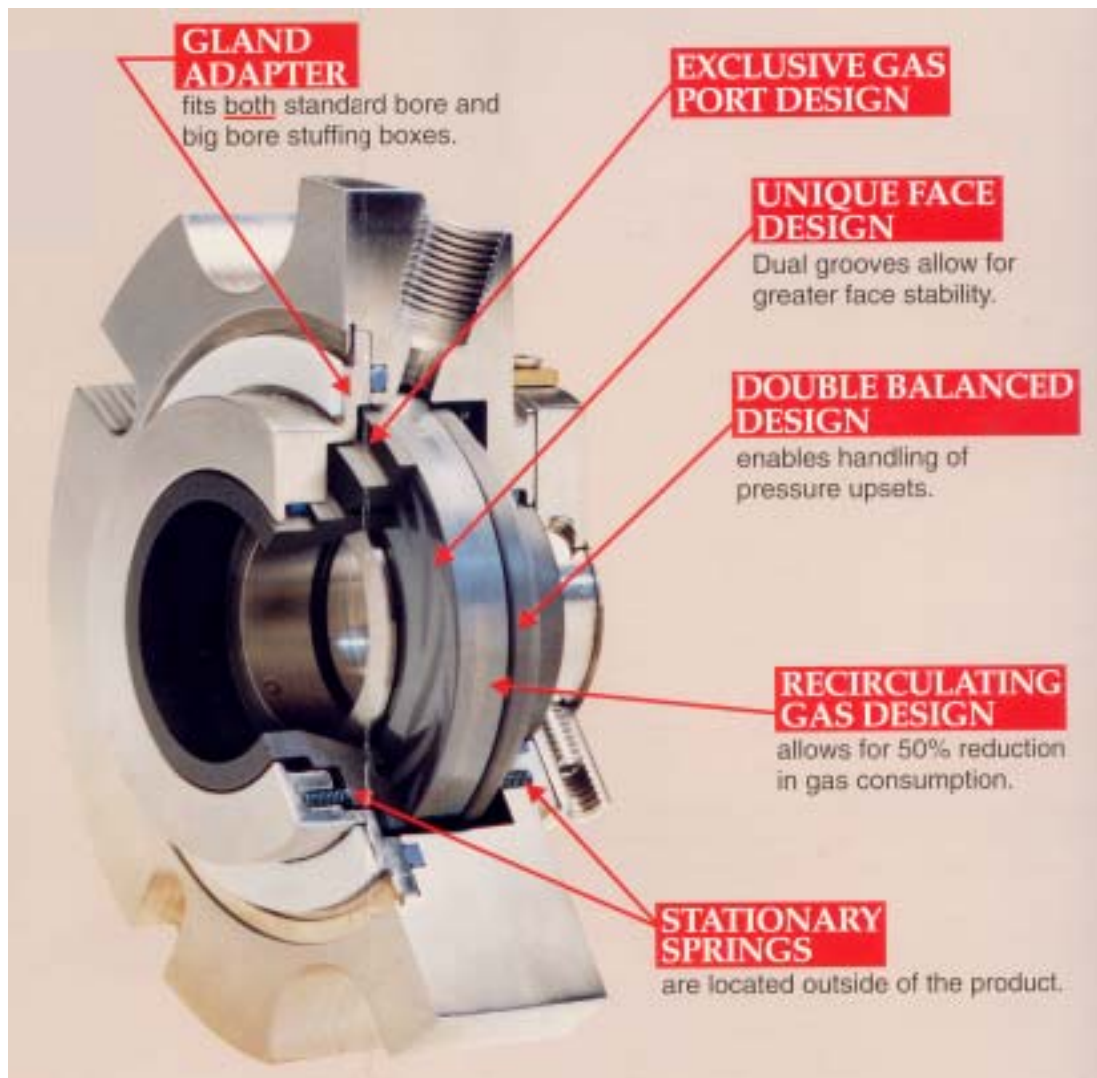
*The latest in non-contacting
gas lift-off technology*



- ◆ *Cartridge design*
- ◆ *Eliminates problems of wet barrier dual seals*
- ◆ *Non-contact design eliminates face wear*
- ◆ *Fits both standard and big bore pumps*

FEATURES AND BENEFITS:

- **TWICE AS MANY PRESSURE POINTS AS MOST OTHER SEALS**
- **MORE FACE STABILITY**
- **UNIQUE GROOVE POSITIONING ON THE ROTARY FACE INCREASES THE SURFACE SPEED**
- **LESS GAS CONSUMPTION (OVER 50%)**
- **ELIMINATES EMISSIONS**
- **REDUCED POWER CONSUMPTION**
- **UNIFORM DISTRIBUTION OF BARRIER GAS THROUGH NUMEROUS PORTS DIRECTLY TO THE DUAL GROOVE FACES TO IMPROVE LIFT-OFF AND STABILITY**
- **REDUCES INVENTORY, THE 7000G IS DESIGNED TO FIT BOTH STANDARD AND BIG BORE STUFFING BOXES**



Operating Conditions

Temperatures: -40°F to 500°F (-40°C to 260°C)

Pressure: Full vacuum to 400 psi (28 bar)

Speed: Up to 5000 fpm (25 m/s)

Standard Materials

Springs: Alloy C-276

Metal parts: 316 stainless steel

Rotating face: Silicon carbide

Stationary face: #12 carbon, silicon carbide

Gaskets: Fluoroelastomer or perfluoroelastomer

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TORONTO



MONTREAL

Bearing Isolators



Applications:

- ◆ Centrifugal pumps
- ◆ Electric motors
- ◆ Spindles
- ◆ Horizontal rotating equipment
- ◆ Gear boxes
- ◆ Pillow blocks

FEATURES AND BENEFITS:

- **AS EASY TO INSTALL AS A LIPSEAL** and fits into place with no alterations.
- **CARTRIDGE DESIGN** allows quick one-step installation with no secondary member to worry you.
- **ENGINEERED STANDARD IN SHORT AXIAL LENGTHS..500 (1/2") overall length.** Shorter lengths and flush mounting are available.
- **NO SHAFT FRETTING OR SLEEVE WEAR.** This PPC Bearing Isolator is engineered as a non-contact, centrifugal motion bearing protector.
- **I.D. STATIC O-RINGS**
- **ADAPTABLE TO ALMOST ANY BEARING HOUSING** without modifications. Directly replaces lipseals and complicated labyrinth seals in horizontal applications.
- **CONTAMINANT TRAPPING GROOVE** inside the main body repels, traps and/or expels contaminants.
- **660 BEARING BRONZE STANDARD** material in PPC isolators. Other materials available on request, for greater resistance to chemicals with corrosive properties.
- **DESIGNED TO WITHSTAND AXIAL RUNOUTS** with .040" axial and radial clearances standard.

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ULTRASeal150

Metal Bellows Seal



FEATURES AND BENEFITS:

STATIC O-RING WILL NOT FRET OR HANG UP eliminating damage to shaft or sleeve.

COMPACTLY DESIGNED to fit virtually any stuffing box.

BELLOWS IS INHERENTLY BALANCED eliminating the need for a step in the shaft or sleeve.

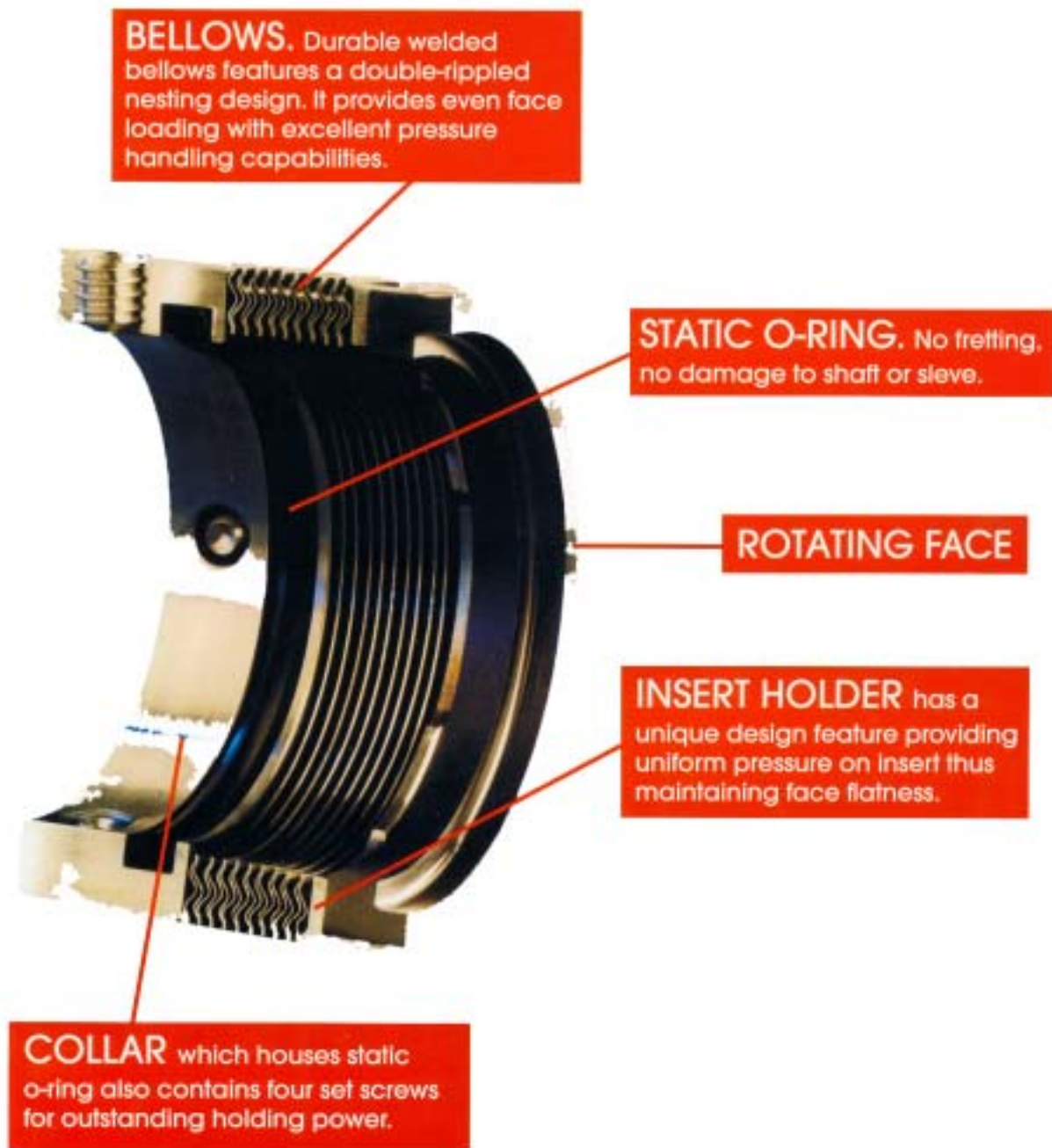
BELLOWS IS SELF-CLEANING due to centrifugal action. There are no springs to clog or hang up.

WIDE RANGE OF PRESSURES AND TEMPERATURES TO 300 PSI AND 450°F.

BELLOWS ARE WELDED using state-of-the-art technology. AM350 bellows are heat treated for maximum strength and durability.

LOW MAINTENANCE AND REPAIR COST. O-ring, set screws and carbon seal face are replaced. Optional silicon carbide or tungsten carbide hard faces are relapped.

ROUND-THE-CLOCK TECHNICAL SERVICE is available to help you solve your mechanical seal problems.



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VANCOUVER



EDMONTON



TORONTO



MONTREAL

UltraSeal 51

Metal Bellows Cartridge Seal



FEATURES AND BENEFITS:

- ◆ **FAST, EASY INSTALLATION**
- ◆ **UNIVERSAL APPLICATION**
- ◆ **HANDLES MANY SERVICES**
- ◆ **LOW REPAIR COST**
- ◆ **OPTIONAL SAFETY FEATURES**

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www.robcoCanada.com**VANCOUVER****EDMONTON****TORONTO****MONTREAL**

ULTRASeal780

High Temperature Metal Bellows Seal



FEATURES AND BENEFITS:

HIGH TEMPERATURE GRAPHITE SECONDARY shaft seal is non-fretting.

HANGS-UPS ARE ELIMINATED as well as shaft or sleeve damage which results from a metal wedge design.

COMPACTLY DESIGNED to fit virtually any stuffing box.

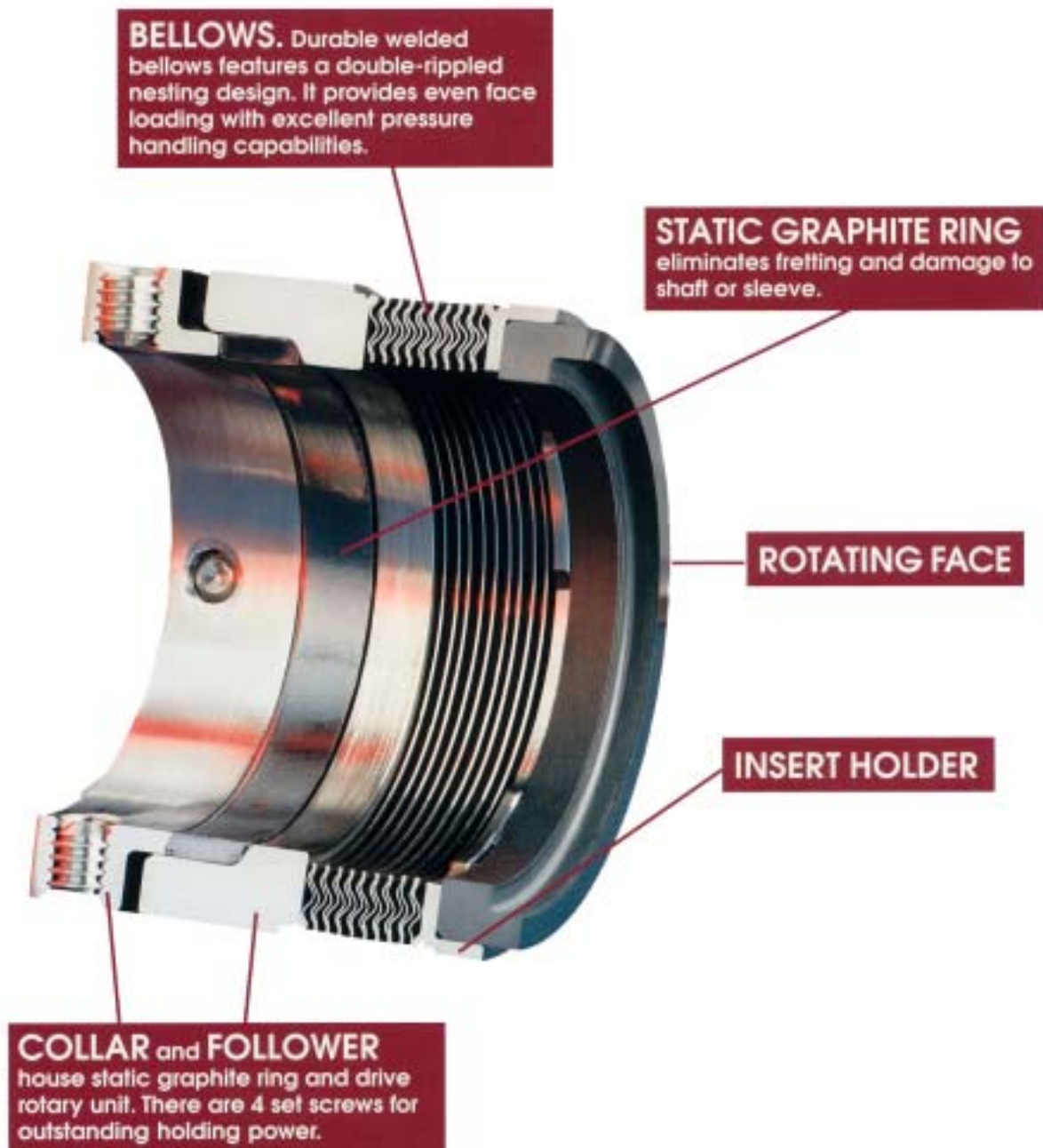
BELLOWS ARE INHERENTLY BALANCED eliminating the need for a step in the shaft or sleeve.

SELF CLEANING BELLOWS due to centrifugal action. There are no springs to clog or hang up.

HANDLES HIGH TEMPERATURE, MEDIUM PRESSURE. Range is to 300 psi and 900°F.

BELLOWS ARE WELDED using state-of-the-art technology.

LOW MAINTENANCE AND REPAIR COST. Graphite ring, set screws and carbon seal face are replaced. Optional tungsten carbide hard face is relapped as well as all stationary seal.



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VANCOUVER



EDMONTON



TORONTO



MONTREAL

ULTRASeal 2000

Environmentally Safe Double/Tandem Metal Bellows Cartridge Seal



FEATURES AND BENEFITS:

BELLOWS DESIGN provides even pressure to hold seal faces together.
Flexibility automatically compensates for axial movement or runout.

SELF-CLEANING ACTION due to centrifugal force throwing suspended solids away from the bellows.

NO SPRINGS to clog or corrode.

STATIC O-RINGS eliminate fretting and shaft wear.

PRESET virtually eliminating installation errors. **Installs in minutes.**

FITS POPULAR ANSI PUMPS and others without modifications to the stuffing box. **The UltraSeal 2000 is designed to handle temperatures up to 450°F and pressures up to 300 psi.**

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TORONTO



MONTREAL

Teflon Bellows Seals



TG and TW models are designed for high-performance on a wide range of highly corrosive services.

FEATURES AND BENEFITS:

CORROSION PROOF CONSTRUCTION Chemically inert Teflon bellows is completely unaffected by aggressive chemical attack.

SUPERIOR CLAMPING DESIGN Clamping area is fifty percent wider than competitors seals, providing superior holding power. The split clamp is designed with an anti-extrusion lip that prevents loss of sealing area due to Teflon cold flow.

NO FRETTING, NO HANG-UPS These problems are virtually eliminated because the bellows allows the secondary sealing area to be completely static.

PRECISION MACHINED BELLOWS Absolute dimensional accuracy insures superior sealing performance. Bellows is virgin Teflon with glass-filled Teflon ends for excellent strength and wearing ability. Face material on the TG is glass-filled Teflon while the TW uses carbon or silicon carbide.

OPERATING LIMITS The TG and TW seals can handle temperatures up to 250°F. Pressures to 100 psi can be handled of ambient temperatures.

**HYDRAULICALLY BALANCED
TEFLON BELLOWS** provides
optimum closing force, minimized face
friction and prolonged seal life.

SPRING RETAINER

CLAMP RING

ANTI-EXTRUSION LIP

TG has a glass-filled
Teflon rotary face.

TW has a carbon
insert rotary face.

**WIDE
CLAMPING
AREA**

BelloWS element is manufactured
in one piece.

**REPLACEABLE
SEAL FACE**

MULTIPLE SPRINGS
provide even face-loading.

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EDMONTON



TORONTO



MONTREAL

1500ERB

General Purpose Cartridge Bellows Seal



FEATURES AND BENEFITS:

POSITIVE PIN DRIVE eliminates distorted and out of round sleeves.

NO HANG-UPS, FRETTING, OR WEAR in the sleeve because there is no dynamic O-ring.

SETTING THE SEAL IS AUTOMATIC utilizing positioning buttons that do not require removal.

WELDING METAL BELLOWS is a nested, double-rippled design that provides improved pressure handling, distributes face loading evenly, is inherently balanced and is self-cleaning.

TANGENTIAL FLUSHING directs abrasive particles away from the seal faces.

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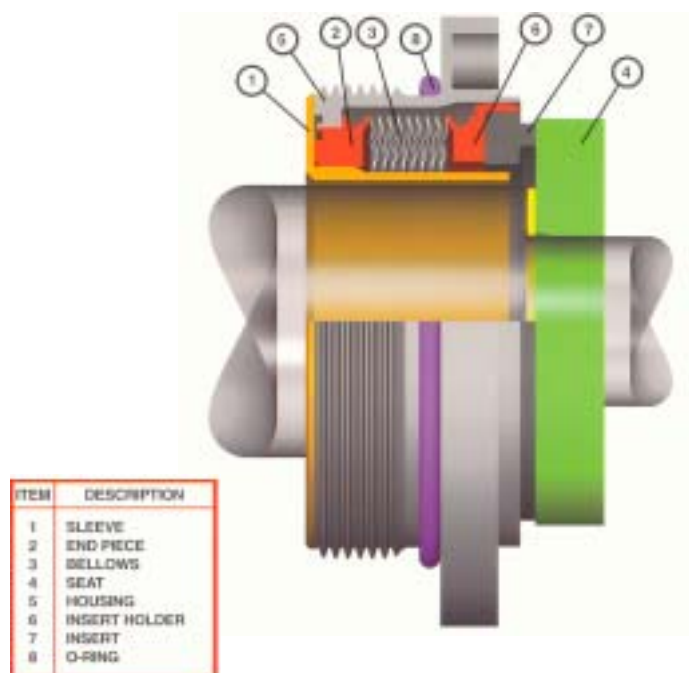
Cryogenic Ultraseals

*Designed for the most popular cryogenic pumps (site-based or road tanker)
Made to handle O₂, Ar, N, CO₂ and other industrial liquified gases.*



STATIONARY WELDED CRYOGENIC METAL BELLOWS Space age material provides exceptional fracture resistance to fatigue at cryogenic temperatures while still providing the spring properties and face loading to insure reliable sealing performance.

STANDARD FACE MATERIALS are **CARBON GRAPHITE** running against a **440C STAINLESS ROTOR** (or **TUNGSTEN CARBIDE** alternate available).



FEATURES AND BENEFITS:

- **COMPLETE KITS INSURE EASY INSTALLATION**
- **MEETS LIQUID OXYGEN SAFETY STANDARDS**
- **EACH SEAL CONTAINS AN ANTI-SPARK SLEEVE**

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TORONTO



MONTREAL

MECO seal designs, which feature large-radius seal faces to tolerate unbelievable shaft runouts, have routinely been used to seal bent shafts, saving users hundreds of thousands of dollars in maintenance costs.

- ♦ ***MDU/MDS Modular Sealing System***
- ♦ ***EAS***



MDU/MDS

MODULAR SEALING SYSTEM



The patented MECO/Systems shaft sealing concept uses an adaptation of the mechanical seals used so effectively in pumps and compressors, but with a significant difference. That difference is the use of a self-compensating elastomer gland instead of complicated springs, collars, O-rings, or other “fragile” devices to seal the shaft and drive rotating members.

FEATURES AND BENEFITS:

Functionally seal where conventional packing can't.

Dramatically cut the downtime normally required for seal replacement.

Provide the same protection as a double mechanical seal.

Offer capabilities no other seal can, including dramatically better leakage control.

Can be easily user-installed and maintained.

Totally eliminates the need to replace shaft sleeves because they've been scored by packing or fretted by conventional seals.

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EAS externally adjustable seals offer complete containment of dry powders, pastes, slurries, fluids, vapors and gases on a wide variety of rotating equipment, where traditional packings fail to seal. EAS seals are manufactured fully-split, permitting installation and rebuilding without bearing or drive removal.

FEATURES AND BENEFITS:

Easy to install.

The seal face pressures are fully-adjustable.

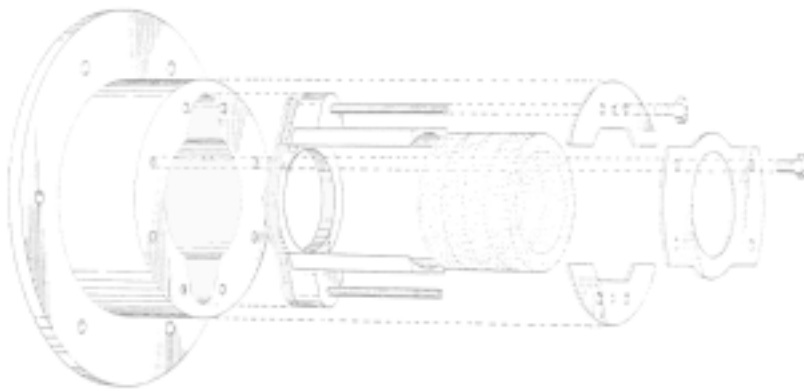
There are no internal springs to loosen due to seal face wear, or to corrode in hostile chemical environments.

All adjustment hardware is located outside the seal's purge cavity, so the seal can be adjusted with no disassembly, often while the equipment continues to operate.

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An engineered self-adjusting stuffing box designed to run without water lubrication and save energy.

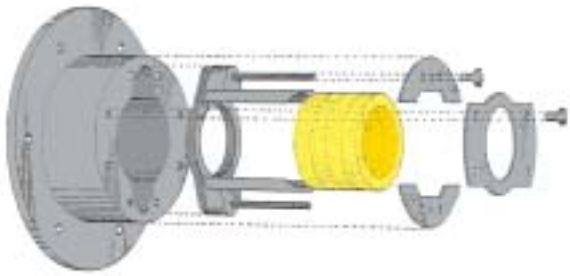
◆ **RSGF**



RSGFTM

Reverse Sequence Gland Follower

An engineered self-adjusting stuffing box designed to run without water lubrication and save energy



The RSGF's new patented concept greatly reduces the torque required on the gland follower. Instead, torque is transferred to the ring closest to the medium to seal. *Completely the reverse of standard stuffing box designs.*

Packing replacement is fast and easy because the gland follower is in front of the innermost sealing ring. Mechanically energize this ring to push out the complete packing ring set in one block. *No more packing hooks or risk of damaging equipment!*

FEATURES AND BENEFITS

- ◆ No flush water costs
- ◆ No product dilution
- ◆ No stock cooling
- ◆ No stock contamination
- ◆ No expensive lantern ring
- ◆ Extends packing life
- ◆ Minimal frictional heat-minimal packing/sleeve wear
- ◆ Fast and easy packing ring replacement
- ◆ Self-adjusting
- ◆ Designed for agitators
- ◆ High tolerance of radial/axial movement
- ◆ Energy saver



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VANCOUVER



EDMONTON



TORONTO



MONTREAL

Ancillary Devices related to mechanical seals.

- ◆ ***Restriction Bushings***
- ◆ ***Exact-a-Seat Stationnaries***





Quality in design and material make this component an integral part of the Environmental Control System.

FEATURES AND BENEFITS:

- ***IT LIMITS THE ABRASIVES IN THE PRODUCT BEING PUMPED FROM ENTERING THE STUFFING BOX CHAMBER WHEN A CLEAN, COOL, COMPATIBLE FLUID IS INTRODUCED AT A HIGHER PRESSURE THROUGH THE FLUSH PORT.***
- ***THE CLOSE TOLERANCE "C" DIMENSION RESTRICTS THE FLOW OF THE FLUSH EXITING THE STUFFING BOX INTO THE PRODUCT BEING PUMPED, MAINTAINING A CLEANER, COOLER ENVIRONMENT IN WHICH THE MECHANICAL SEAL WILL OPERATE.***
- ***THE FLUSH RATE CAN BE REDUCED TO AN ACCEPTABLE LEVEL WHEN THE RESTRICTION BUSHING AND FLOWMETER ARE INCORPORATED IN THE SAME CONTROL SYSTEMS.***
- ***THE CARBON RESTRICTION BUSHING IS AVAILABLE OFF-THE-SHELF IN "ANSI" SIZES ONLY. SPECIAL SIZES ARE AVAILABLE. PLEASE CONTACT THE FACTORY FOR PRICE AND DELIVERY.***

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We have four standard stationary seat styles suitable for all applications in a wide range of materials.

"O" Ring Mounted Seat



Interchangeable with most comparable centre "O" ring mounted seats.

Style "L" Clamp Seat



The style "L" clamp seat is available in 99.5% alumina ceramic and solid silicon carbide and comes lapped on both sides. The seat self-centers by piloting into the stuffing box. (ANSI sizes)
Standard gaskets are C.A.F.; P.T.F.E. gaskets are available on request.

Distortion Free Seat



Your gland plate can be machined to accept our distortion free seat giving all the advantage of our "Cush-A-Lign" seat. Centering can be achieved by piloting gland into stuffing box and can be made to accept a gasket or "O" ring for sealing against the stuffing box face.

Distortion free seats available in 99.5% alumina ceramic and solid silicon carbide from stock. Other materials are available on request.

Cush-A-Lign Seat



The Cush-A-Lign and Chem-A-Lign spigot into the stuffing box bore and are therefore self-centering.

Seal faces cannot be distorted by overtightening of gland nuts as gland pressure is exerted on the metal seat holder only.

The stationary seat is resiliently mounted on an "O" ring which dampens most vibration from the pump. This allows the stationary seat to "float" for maximum face.

Disclaimer: The data in this specification sheet are representative; These ratings supplied are suggested as a guideline and should only be used for evaluating your specific application. When in doubt, contact Robco. The information contained in this specification sheet should not be considered a warranty, either expressed or implied, including, but not limited to, a warranty of merchantability or fitness for a particular purpose. In no event shall Robco be liable for any incidental or consequential damages resulting from the use, misuse or inability to use the product. This exclusion applies regardless of whether such damages are sought based on breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory.

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Founded in 1911

ISO 9002 Certified

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Robco's mechanical seal repair program gives new life to most mechanical seals that are no longer performing in the field. You can have most of your mechanical seals repaired in one location regardless of their original manufacturer.



Repair Center



MECHANICAL SEAL REPAIR PROGRAM

If you use seals you know repairing them can easily save you 50% of the cost of a new seal. With the exception of the most common throw aways, *Repairing Seals Will Save You Money.*

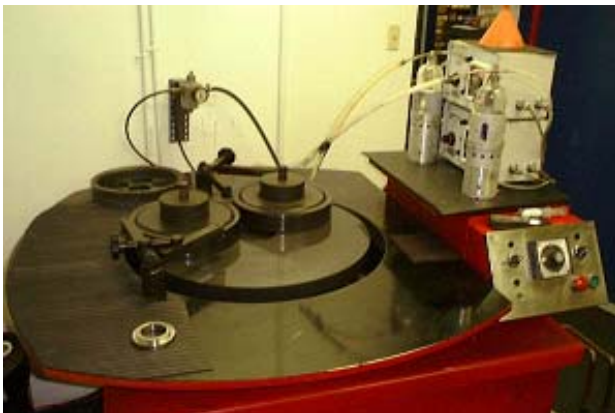
About Robco Mechanical Seal Division

- ◆ The plant is ISO 9002
- ◆ 100% Canadian Company
- ◆ Shop is located in Sarnia, Ontario



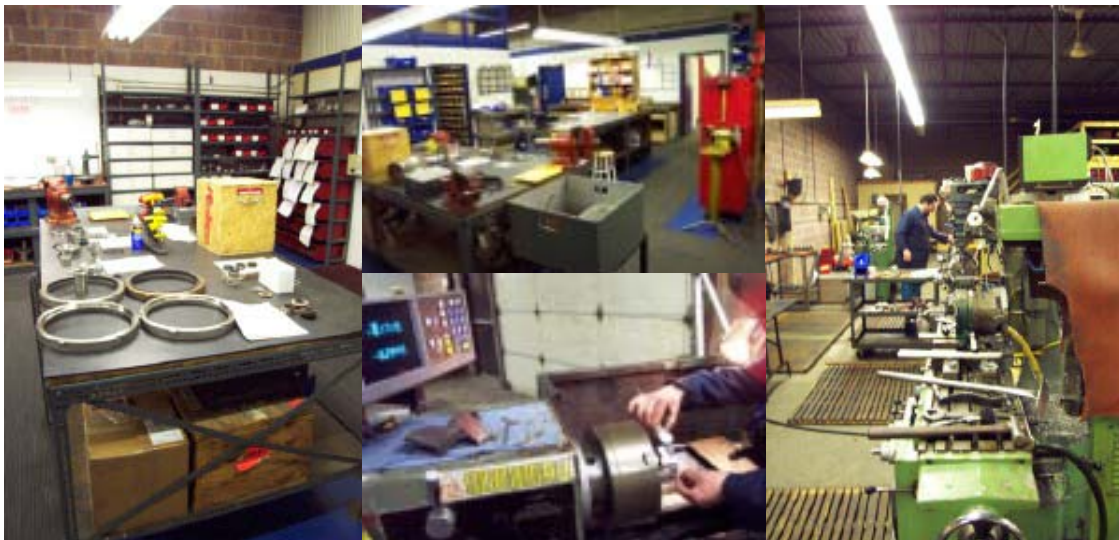
Our Service Expertise

- ◆ Basics of mechanical seal seminars
- ◆ Installation seminars
- ◆ On site installation when needed
- ◆ Troubleshooting analysis
- ◆ Repair Process



REPAIRS AT ROBCO:

- **WE CAN REPAIR VIRTUALLY ANY COMPETITOR SEAL**
- **MOST OF OUR COMPETITORS DON'T OFFER THE SAME VARIETY OF BRAND WHICH THEY CAN REPAIR**
- **STATE OF THE ART TECHNOLOGY**
- **EXTENSIVE INDUSTRY KNOWLEDGE**
- **NO CHARGE ESTIMATION**
- **DETAILED FAILURE ANALYSIS BY ENGINEERING STAFF**
- **EASY REPAIR SYSTEM, EVERY SEAL IS MARKED FOR A TRACKING HISTORY**
- **FIRST QUALITY REPLACEMENT PARTS (TUNGSTEN AND SILICON CARBIDE)**
- **REPAIR KITS ARE AVAILABLE FOR FIELD OF ALL 1200S SEALS.**
- **SEAL FACE REPAIR**
 - ♦ **Grinding**
 - ♦ **Lapping**
 - ♦ **Testing**
 - ♦ **Manufacturing of all shapes**
 - ♦ **All standard materials**
 - ♦ **New designs**



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