5600 Series

UNIVERSAL CARTRIDGE™

THE SEAL FAMILY THAT CHANGES TO FIT YOUR ENVIRONMENT:

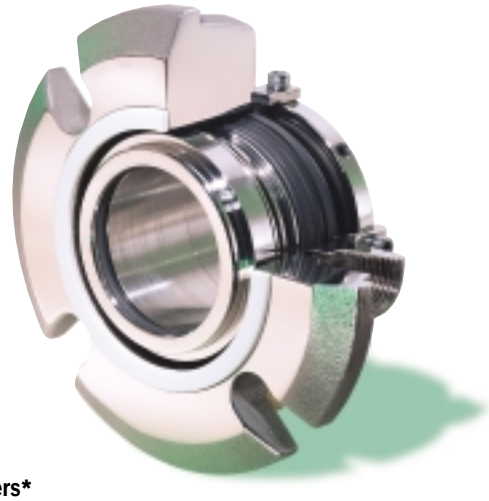
- O-ring
- Elastomer Bellows
- Metal Bellows

John Crane Mechanical Seals

Engineered Sealing Systems

UNIVERSAL CARTRIDGE™

MANY APPLICATIONS. ONE SEAL FAMILY.



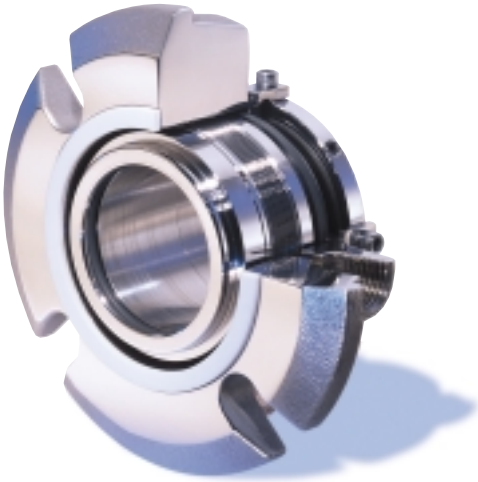
Designed for the chemical, petrochemical, petroleum and pharmaceutical industries, the Universal Cartridge can accommodate a full range of fluids, including:

- water
- caustics
- hydrocarbons
- acids

Operating Parameters*

Type 5610/5610Q Single and Type 5620/5620PR Dual O-ring Seals Type 5615/5615Q Single and Type 5625/5625PR Dual Metal Bellows Seals	
Temperatures	-29°C to 205°C / -20°F to 400°F
Pressures	Up to 21 bar g / 300 psig
Speeds	Up to 25 m/s / 5000 fpm
Type 5611/5611Q Single Elastomer Bellows Seal	
Temperatures	-29°C to 205°C / -20°F to 400°F
Pressures	Up to 27 bar g / 400 psig
Speeds	Up to 25 m/s / 5000 fpm

* Contact John Crane Engineering for applications over ratings.

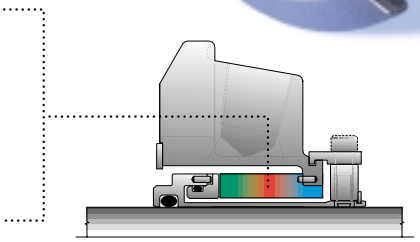


The first truly universal cartridge has built-in modularity, which allows customization for specific applications.

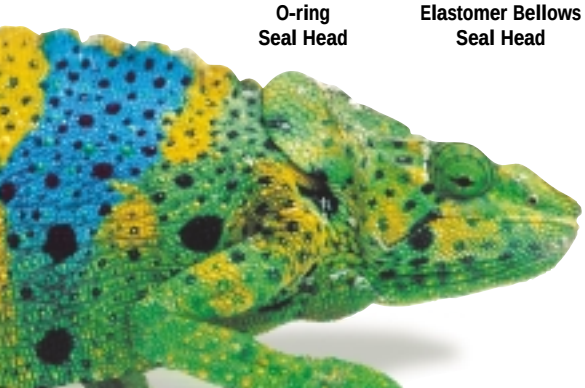
O-ring Seal Head

Elastomer Bellows Seal Head

Metal Bellows Seal Head



Changing the seal head transforms an O-ring seal into a metal bellows seal or into an elastomer bellows seal with a sleeve change.



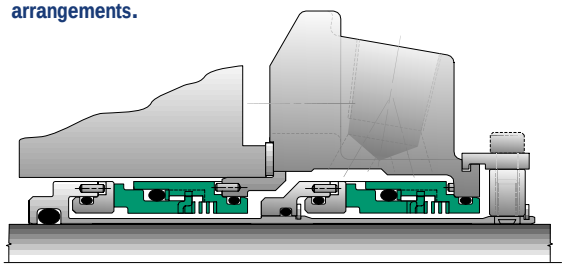
THE UNIVERSAL CARTRIDGE MODULAR CONCEPT

The three basic seal configurations can be offered in a variety of arrangements to suit specific applications.

- All configurations share a common gland plate, mating ring, collar and spacers.
- All single seals can be supplied with a quench gland.

Seal Configuration	Single Arrangement	Dual Arrangement (Double or Tandem)
O-ring		
Rotating Seat	▪	▪
Rotating Head	▪	▪
Elastomer Bellows		
Rotating Head	▪	
Metal Bellows		
Rotating Seat	▪	▪
Rotating Head	▪	▪

The O-ring and metal bellows designs are available in dual arrangements.



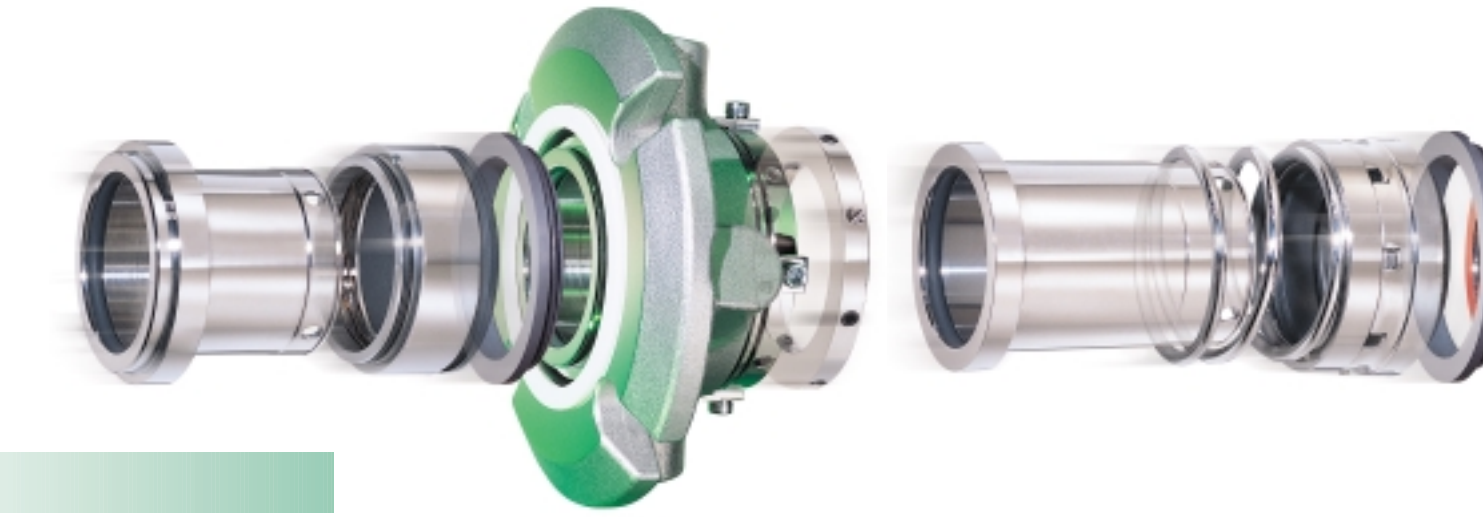
- Pumping rings are available to assist barrier fluid circulation on dual applications.

The seal heads and mating rings are also completely reversible. With this capability, the seal can operate with either the seal head rotating to take advantage of self-cleaning rotational action, or the mating ring rotating, so maximum seal face tracking and cooling is achieved.

ENGINEERED TO BE THE PERFORMANCE LEADER

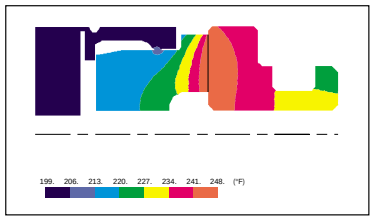
The modularity of these seals does not limit their capabilities. In fact, the seal family introduces a number of high-end design features that make the Universal Cartridge the most powerful seal of its kind.

Using John Crane's proprietary computer analysis programs, CSTEDY℠ and CTRANS℠, coupled with extensive product testing, we subjected and verified Universal Cartridge designs and materials to an array of varying pressures, temperatures and fluids.



The unique 5600 Series delivers enhanced performance benefits:

- Advanced metal bellows front adapter and insert designs provide superior face flatness control through full temperature/pressure transients.



Temperature Distribution Profile of Type 5615 Metal Bellows Seal Faces.

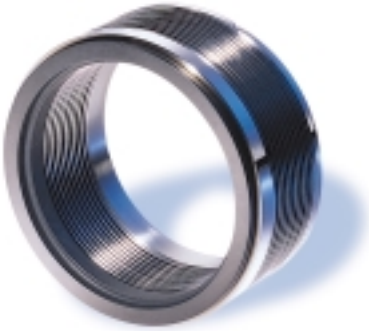
- Computer optimized seal face width and balance provide maximum tracking stability with minimum heat generation.
- Mating ring design accommodates severe O-ring expansion experienced in high temperature or corrosive environments.
- Set screwless John Crane flat drive mechanism provides superior torque transmission and drive reliability while eliminating sleeve distortion, stripped set screws and axial misalignment during assembly.
- Inherent reverse pressure balance capabilities assure process containment in the event of a pressure reversal.
- The Universal Cartridge externally pressurized outboard seal arrangement improves cooling efficiency, allows venting of entrapped air and avoids high tensile stress levels associated with internal pressurization.

THE ONE SEAL FAMILY FOR GLOBAL APPLICATIONS

The capability of the Universal Cartridge to fit both ANSI and DIN pumps is a result of John Crane's extensive analysis of common pump models and feasibility studies. With a slightly different rotation of the gland plate, the Universal Cartridge is like no other in that direct ANSI/DIN interchangeability is achievable. Universal Cartridge is the first seal family with global application.

THE SEAL THAT CHANGES TO FIT YOUR ENVIRONMENT WILL CHANGE THE WAY YOU DO BUSINESS

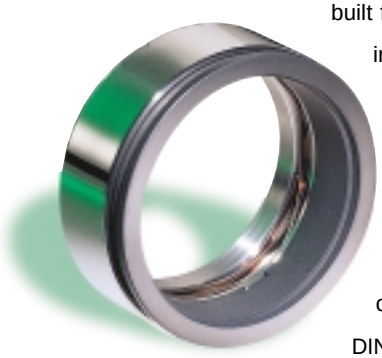
Modular Family Concept



The modular family concept of John Crane's Universal Cartridge will change your approach to sealing. Since the 5600 Series' components are interchangeable, you can apply one seal family throughout your plant. This gives you the flexibility to cover more applications with less inventory, which means your maintenance is simplified, downtime is reduced, plant operating efficiency is increased, and costs are lowered.

Application-Tailored Arrangements

The Universal Cartridge's unique design delivers the superior operational capabilities of a John Crane seal, tailored precisely to fit your application. Whether your conditions require an O-ring, metal bellows or elastomer bellows seal, the Universal Cartridge is built from the ground up to meet your specifications. The seal is available in single or dual arrangements, with the option of rotating or stationary seal heads.



Engineering Leadership

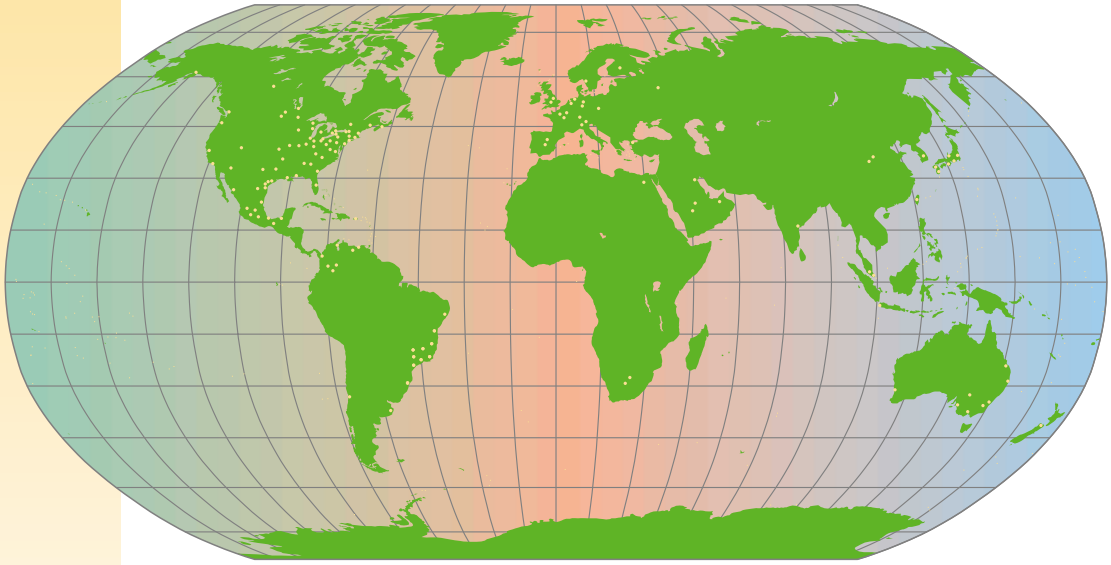
With John Crane's engineering leadership, the Universal Cartridge achieves another notable benefit. It represents the first global cartridge seal designed specifically to fit both ANSI B73.1M and DIN 24960 pumps.

Standardizing with the Universal Cartridge family for the multiple applications in your plant will

- simplify installation and maintenance,
- standardize piping,
- increase seal reliability,
- reduce the possibility of misapplication,
- cut inventory requirements,
- streamline plant operations, and
- simplify upgrades.

This means ultimate efficiency with minimal costs—the most productive way to do business.

UNIVERSAL CARTRIDGE PROTECTS THE ENVIRONMENT AROUND THE WORLD



○ John Crane Stocking Centers

Available Locally

The Universal Cartridge is available through your local John Crane sales/service engineer to meet your specific requirements. Interchangeability of parts allows us to keep a full inventory throughout our extensive worldwide network. Contact your nearest John Crane stocking center for timely delivery of the Universal Cartridge—the world's first truly universal seal that changes to fit your environment.

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