

TO NAVAGATE THIS CATALOG, PLACE YOUR MOUSE OVER THE PAGE NUMBER THAT YOU ARE INTERESTED IN AND CLICK. YOU MAY ALSO USE THE "NAVAGATION PANE" ICON LOCATED ON THE TOOLBAR OF ACROBAT READER TO DISPLAY AN INDEX OF THUMBNAIL IMAGES DEPICTING THE PAGES IN THIS CATALOG. THE THUMBNAIL IMAGES CAN BE DOUBLE-CLICKED TO TAKE YOU TO THE PAGE OF CHOICE.



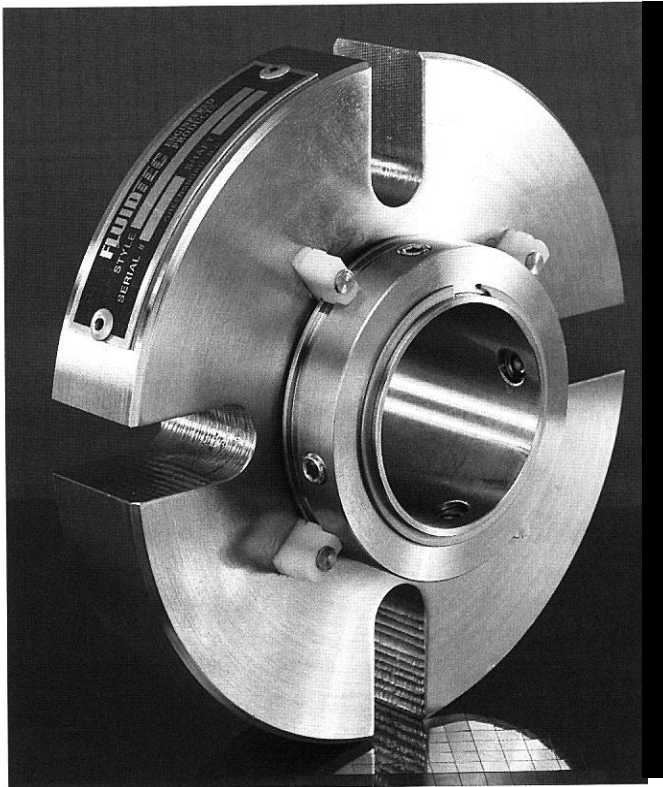
TABLE OF CONTENTS

<i>Style</i>	<i>Page No.</i>	<i>Style</i>	<i>Page No.</i>
GMP-I	1	16/30	11
GMP-II	2	60/65	12
19/20	3	PK/10	13
61/62/63/64 Series	4 & 5	P/S-I	14
3-D Mixer Seal	6 & 7	P/S-II	15
35/35FS	8	Standard Stationaries	16
18	9	Seal Repair	Inside back cover
80	10		

See Technical Information Brochure FEP 1:2 for dimensional data

The employees of Fluidtec Engineered Products take pride in the mechanical seals and service we offer. We are backed by over 100 years of experience serving the industrial marketplace with premium, innovative sealing products. Our goal is to meet today's and tomorrow's demanding industrial requirements with the highest quality products, design engineering, application support and customer service.

The products offered in this catalog result from an innovative approach to problem solving using all the material resources available to us. Our standard line of mechanical seals is augmented by specific individual solutions to some of today's most critical sealing applications. It is because of this that we openly invite our customers to challenge us with a wide range of applications. It is by taking this approach that we can offer tomorrow's solutions to today's challenges.



Balanced single cartridge seal

FLUIDTEC'S GMP-I provides the user with many features found on more expensive seals. Incorporating a cost effective cartridge design, this versatile seal is available in a range of materials, making it ideal for a wide range of applications.

PERFORMANCE

Shaft Speed: 5000 FPM (25.5 MPS)
 Pressure: up to 300 psi (20 bar)
 seal chamber pressure
 Vacuum: 28" Hg max. (700mm Hg)
 Temperature: 400° F (204°C) max with
 Fluoroelastomer or Aflas*;
 500° F (260°C) max. with Kalrez®

MATERIALS

Metallurgy: 316SS & Alloy 20
 Rotary faces: silicon carbide (SA)
 Stationary faces: chemical grade carbon; tungsten carbide
 Springs: Hastelloy C
 O-Rings: Fluoroelastomer standard: Aflas* or Kalrez® offered as alternative

FEATURES

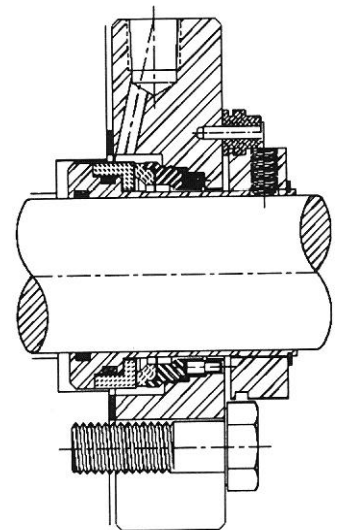
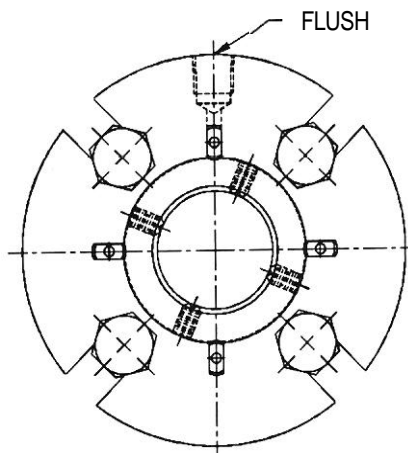
- Pre-assembled cartridge
- Balanced internal design
- Fits standard ANSI pumps
- Rebuild kit available
- Attached setting clips
- Minimal distance to first obstruction
- Stationary springs

BENEFITS

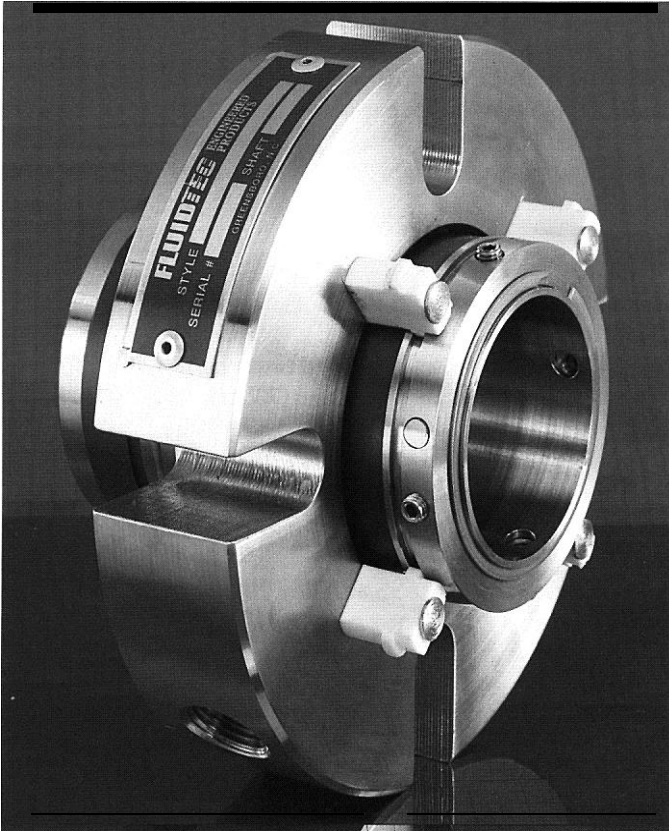
- Easy to install.
- Runs cooler and lasts longer.
- No modifications.
- In-field repair.
- No lost parts.
- Compatible with wide range of bearing protectors.
- Better face/seat alignment.

*Trademark of Asahi Glass Co.

®Kalrez is a registered trademark of DuPont



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Double cartridge seal

The FLUIDTEC GMP-II double balanced seal incorporates a compact design with proven sealing technology. The result is a high quality, cost effective seal designed for use on a wide variety of rotary equipment applications.

PERFORMANCE

Shaft Speed: 5000 FPM (25.5 MPS)
 Pressure: up to 300 psi (20 bar)
 seal chamber pressure
 Vacuum: 28" Hg max. (700mm Hg)
 Temperature: 400°F (204°C) max with
 Fluoroelastomer or Aflas; 500°F
 (260°C) max. with Kalrez®

MATERIALS

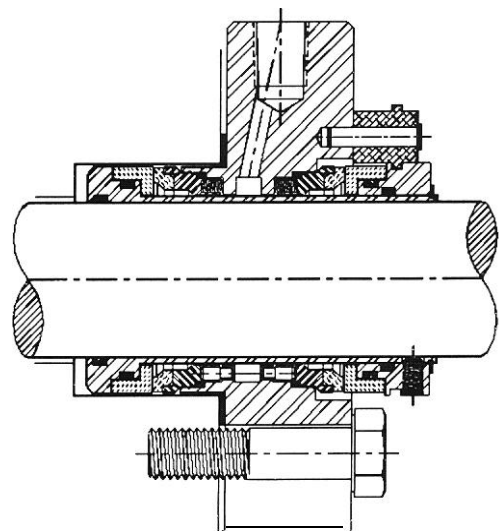
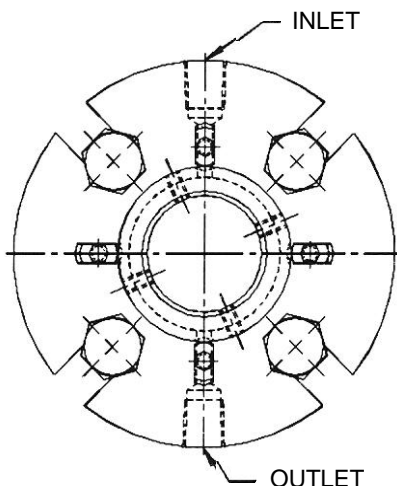
Metallurgy: 316SS & Alloy 20
 Rotary faces: silicon carbide (SA)
 Stationary faces: Inboard - chemical grade carbon;
 tungsten carbide; Outboard - chemical
 grade carbon
 springs: Hastelloy C
 O-Rings: Fluoroelastomer standard; Aflas or
 Kalrez® offered as alternative

FEATURES

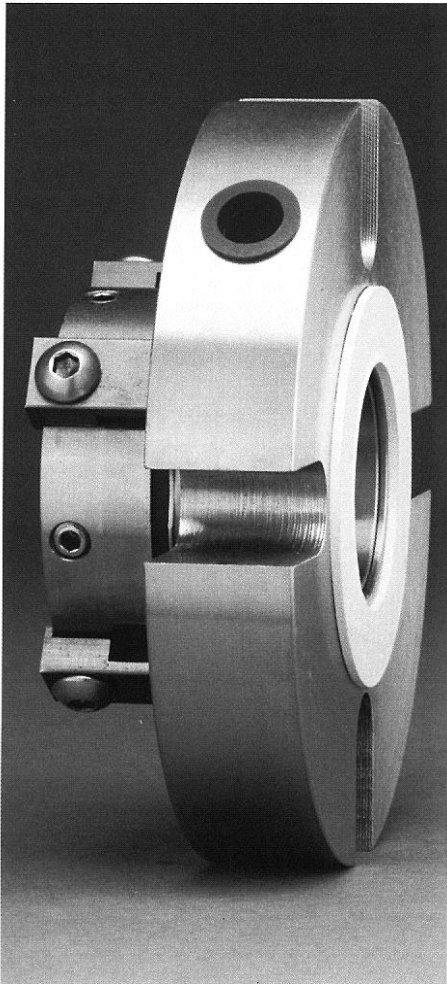
- Double cartridge design
- Balanced configuration
- Cost effective rebuild kits
- Fits standard ANSI pumps
- Stationary compression units
- Minimal distance to first obstruction

BENEFITS

- Easy installation.
- Runs cooler and lasts longer
- Easy in-field repair.
- No modification required.
- Improved face alignment and extended seal life
- Fits wide range of pumps.



Compact seal for vertical pumps/mixers/agitators



The Style 19 mechanical seal is a preset double cartridge seal that does not require a stuffing box. Its compact design makes it readily adaptable to a wide variety of demanding applications.

The Style 20 mechanical seal offers the same features in a single seal design.

Special gland design is available upon request.

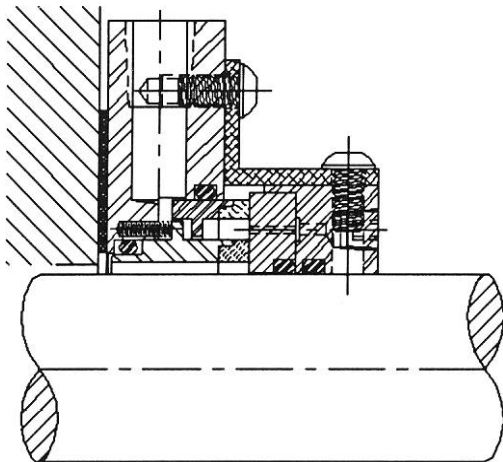
PERFORMANCE

Speed: 4000 FPM (20 MPS)
 Pressure: Style 19: 300 psig (double)
 Style 20: 400 psig (single)
 Temperature: -40°F (-40°C) to +350°F (+175°C)

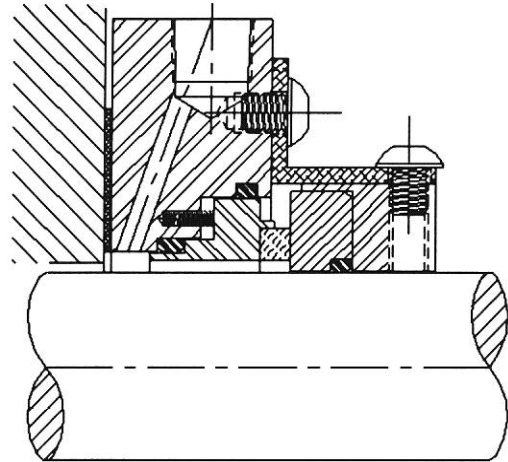
MATERIALS

Metal parts: 316SS
 Set screws: Hastelloy C
 Springs: Hastelloy C
 O-Rings: fluoroelastomer standard
 Rotary face: silicon carbide (SA) or tungsten carbide
 Stationary face: chemical grade carbon or tungsten carbide

FEATURES	BENEFITS
<ul style="list-style-type: none"> Wide rotary face design 	Can withstand .125" T.I.R.
<ul style="list-style-type: none"> External seal 	No stuffing box required
<ul style="list-style-type: none"> Stationary design 	Fits a wide variety of equipment
<ul style="list-style-type: none"> Cartridge seal 	Minimizes vibration and harmonic distortion
<ul style="list-style-type: none"> Single/double design 	Easy installation
<ul style="list-style-type: none"> Repair kit available 	Services a wide variety of applications
	Field repairable



STYLE 19
double seal



STYLE 20
single seal

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Fully Convertible Cartridge Seals

Single . . . Double . . . Tandem . . . Metal Bellows . . . Multiple Springs
Appropriate solutions in one package!



FEATURES

- One cartridge seal allows you to choose a metal bellows or multiple spring, single or double
- Modular compression units
- Stationary design
- Labyrinth restriction hushing (61/63)
- Pumping ring (optional)
- Attached setting clips

BENEFITS

- Versatile/reduced inventory. Same gland, sleeve and seat wed in each option
- Simple conversion/in-plant repair
- Eliminates harmonic vibration, improved face alignment, extended seal life
- Directs steam purge, non-sparking
- Provides positive double seal cooling through forced circulation
- Readily available during adjustments

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61/63 Single Seals

Style 61 single metal bellows
Style 63 single multiple spring

PERFORMANCE

Shaft speed: 5000 FPM (25.5 MPS)
 Pressure: up to 300 psig (20 bar) stuffing box pressure
 Vacuum: 28" Hg max. (700 mm Hg)
 Temperature: 400°F (205°C) max. with Viton
 O-Ring; 300°F (150°C) max. with EPR O-Ring

MATERIALS

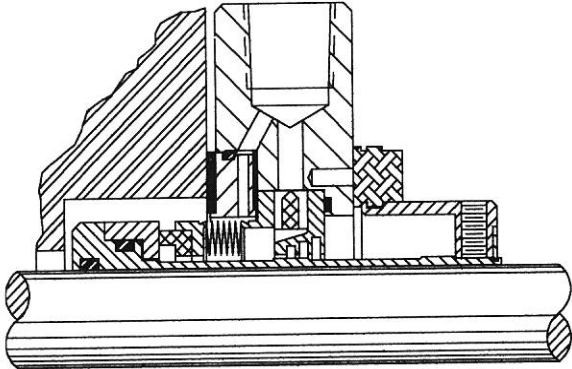
Metal parts: 316SS
 bronze steam purge bushing (61/63)
 316SS pumping ring (62/64) optional
 Bellows: AM 350 or Hastelloy C (61/62)
 Spring assembly: Hastelloy C springs with 316SS carrier (63/64)
 O-Rings: fluor elastomer standard
 Rotary face: silicon carbide (SA)
 stationary face: chemical grade carbon or tungsten carbide

62/64 Double Seals

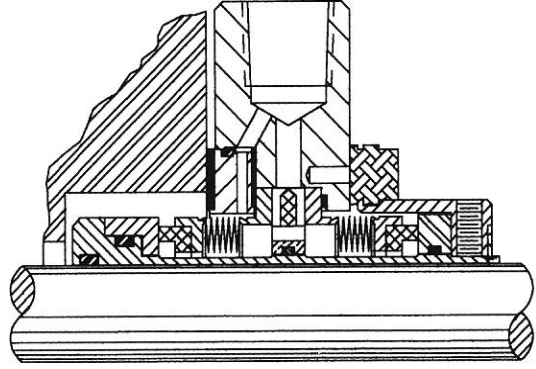
Style 62 double metal bellows
Style 64 double multiple spring

PERFORMANCE

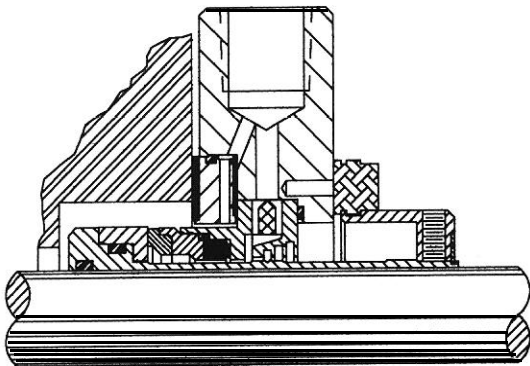
Shaft Speed: 5000 FPM (25.5 MPS)
 Pressure: up to 300 psig (20 bar) stuffing box pressure; up to 150 psig (10 bar) barrier fluid capacity
 Vacuum: 28" Hg max. (700 mm Hg)
 Temperature: 400°F (205°C) max. with Viton
 O-Ring; 300°F (150°C) max. with EPR O-Ring



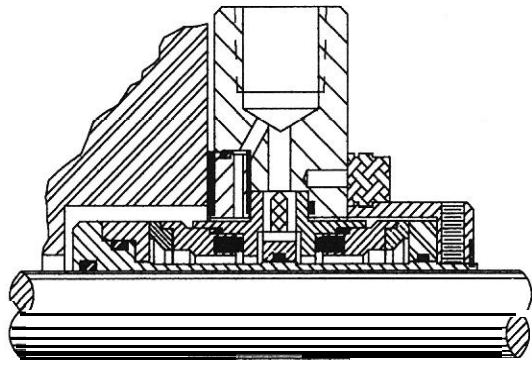
STYLE 61
single metal bellows seal



STYLE 62
double metal bellows seal



STYLE 63
single multiple spring seal



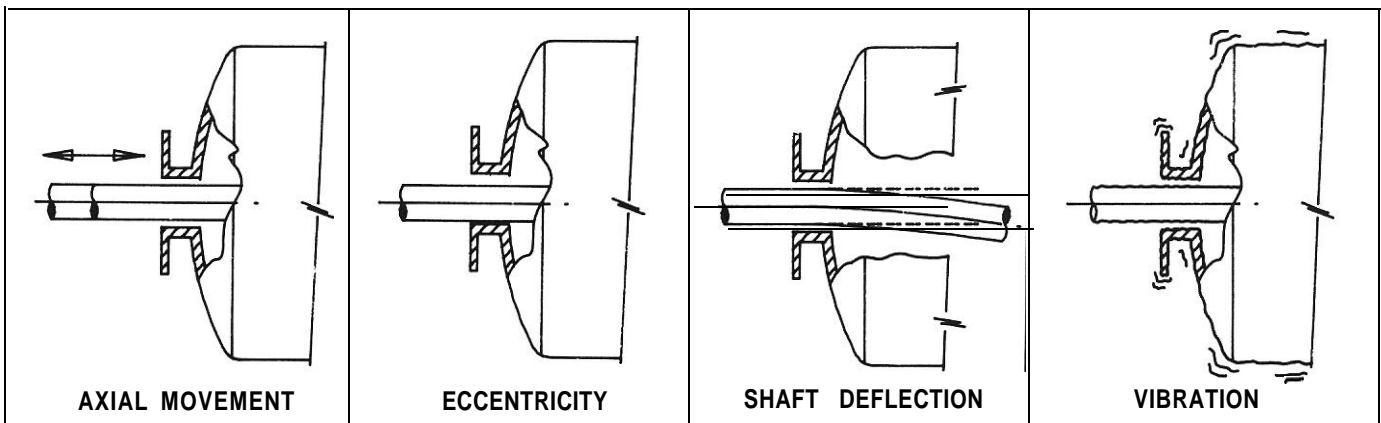
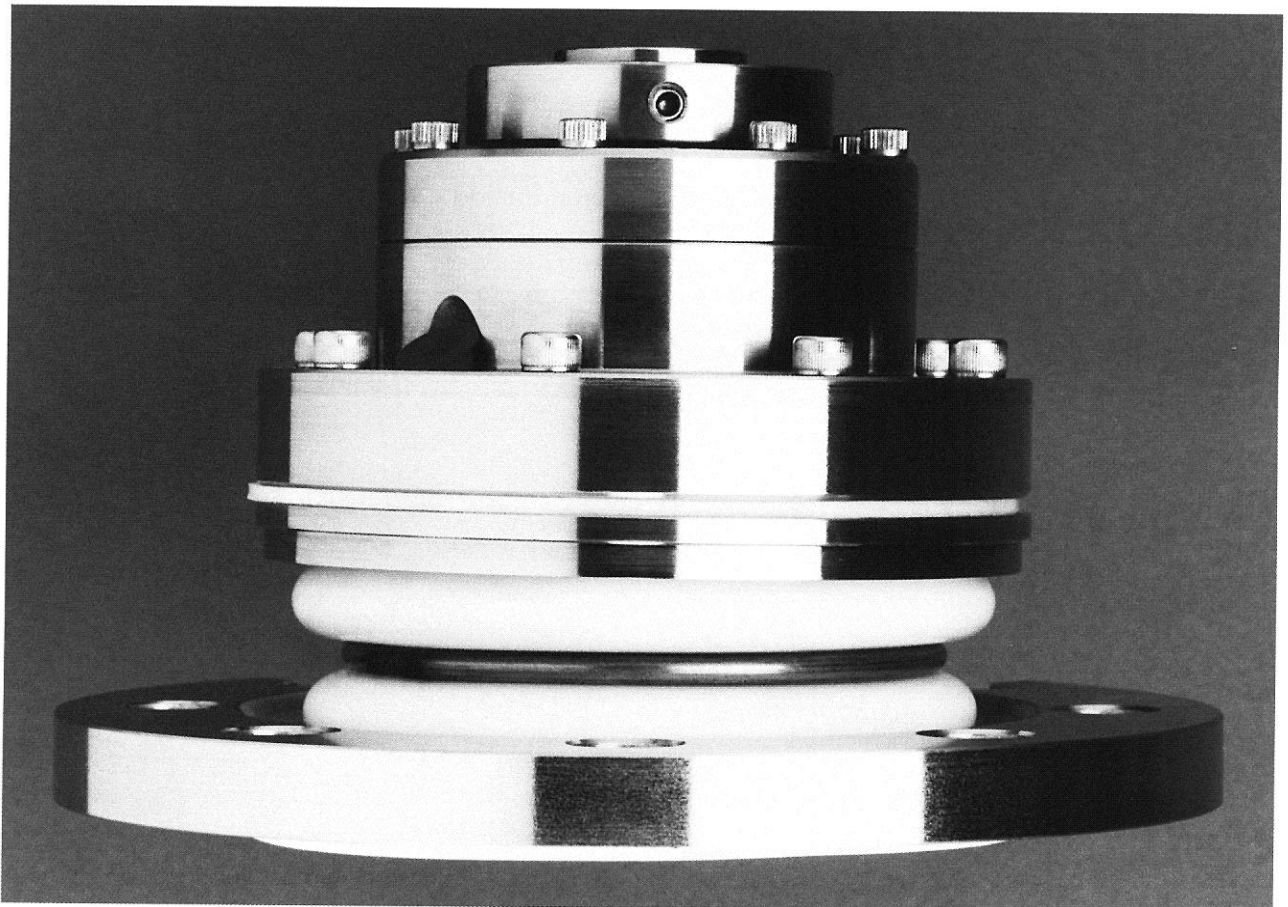
STYLE 64
double multiple spring seal

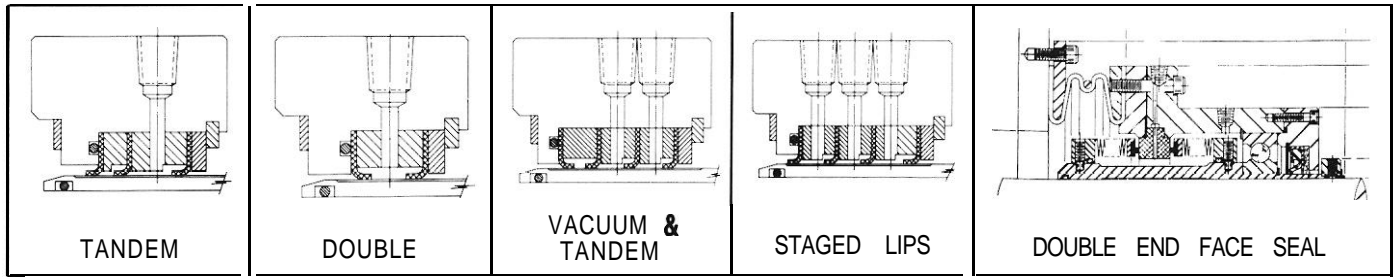
Style 3-D Mixer/Agitator Seal

Engineered to function under extreme mechanical conditions far beyond those of conventional seals

The floating design of the flexible housing in the 3-D seal compensates for radial and axial movement of all kinds. The relationship between the sealing element and the shaft sleeve

remains consistent under all the conditions indicated below.





TYPICAL SEAL ARRANGEMENTS

3-D Mixer Seal

Each 3-D seal is custom designed to suit the equipment and the application .

MATERIAL SPECIFICATIONS

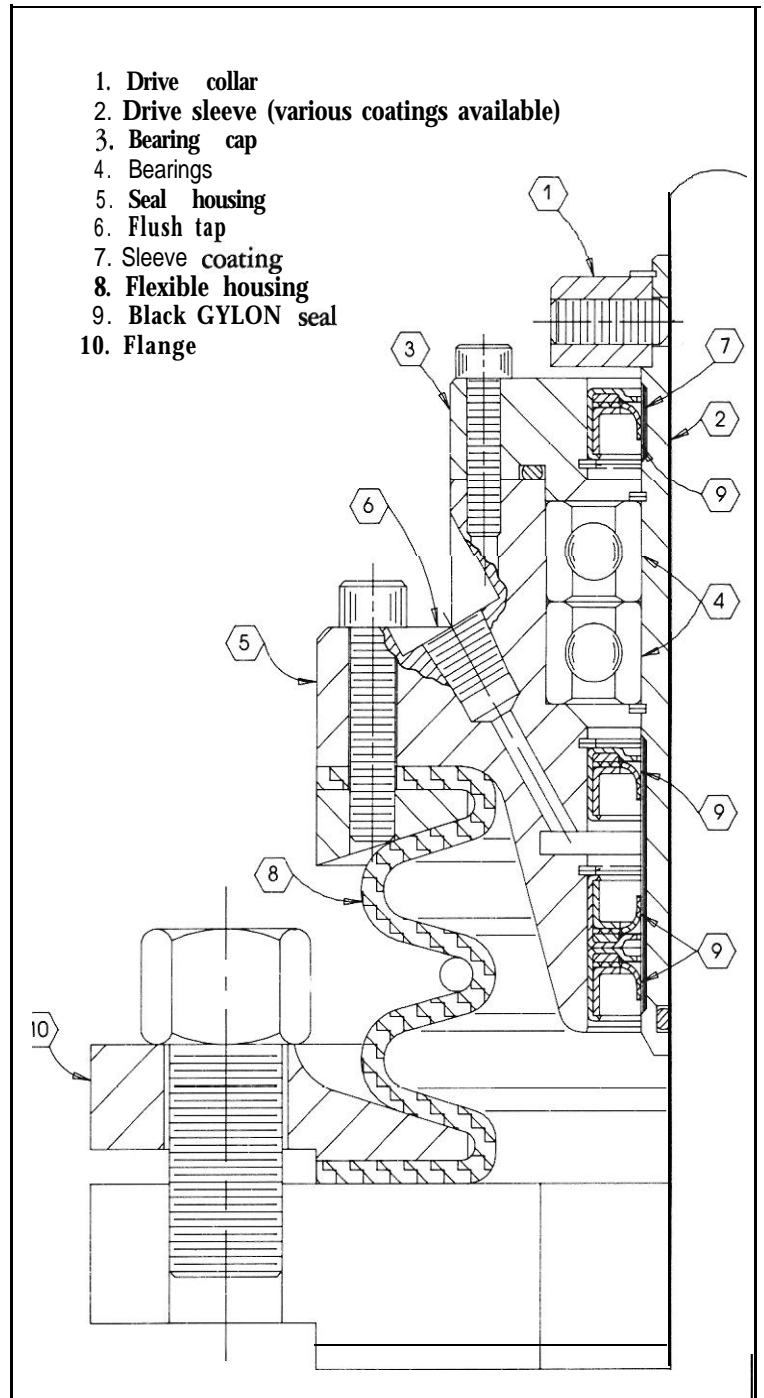
The 3-D utilizes a proprietary FLUIDTEC black GYLON® sealing element. This unique formulation enables the 3-D to be used as a dry running or lubricated seal. Black GYLON has the chemical inertness of PTFE. Seal elements can be arranged to meet specific operational needs.

OPERATING PARAMETERS

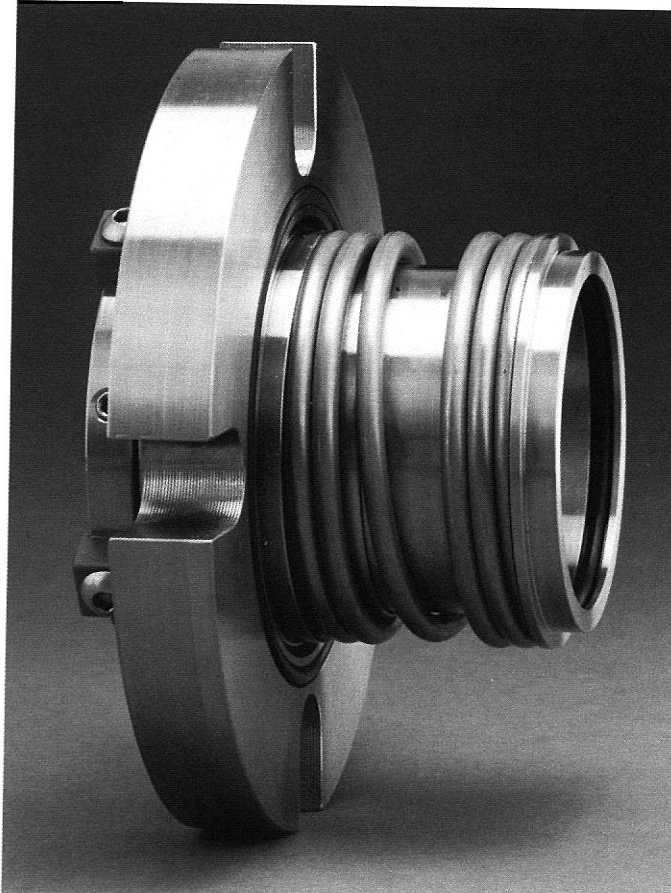
- Temperature: 480°F (250°C)
- Speed: 2500 fpm (12.7 mps)
- Pressure: 28" Hg to 150 psig* (700 mm Hg to 10 bar)
- Sleeve finish: 4 to 6 Mu. In.
- Sleeve hardness: 50 to 70 Rockwell C
- Sleeve coating: (specified based on application)
- Sleeve and seal housing material: 316SS standard
- Flexible housing material: PTFE, 316SS, Hastelloy C 276
- Movement capability:
 - 1" Total Indicated Runout (TIR)
 - 1" Total Axial Movement (TAM)
 - (specific movements calculated per application)

*Above 150 psig, consult FLUIDTEC Engineering

1. Drive collar
2. Drive sleeve (various coatings available)
3. Bearing cap
4. Bearings
5. Seal housing
6. Flush tap
7. Sleeve coating
8. Flexible housing
9. Black GYLON seal
10. Flange



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Heavy duty single cartridge seal

The heavy duty single spring design of the Style 35 seal allows it to operate in applications that tend to dog multiple spring seals. These include slurries of all kinds, industrial waste water and municipal treatment plants.

Style 35FS (Fluid Saver) - this unique seal utilizes a P/S-I lip seal as an excluder. The P/S-I fits into the bore of the stuffing box and rides on a replacement stub sleeve. The result is a seal combination that operates in slurries with a minimum of flush water.

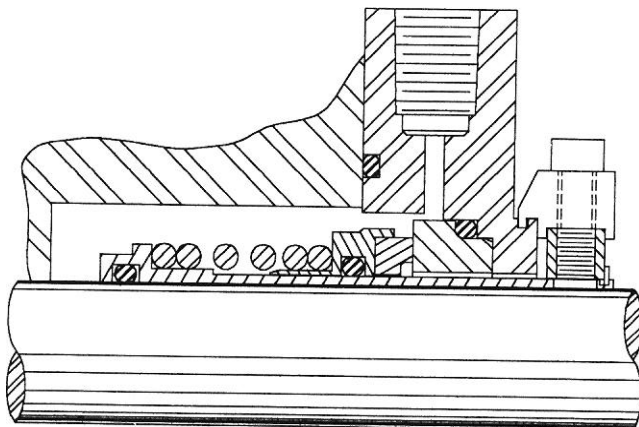
PERFORMANCE

speed: 1500 FPM (7.6 MPS)
 Pressure: 150 psig (10 bar)
 Temperature: 400° F (205° C)

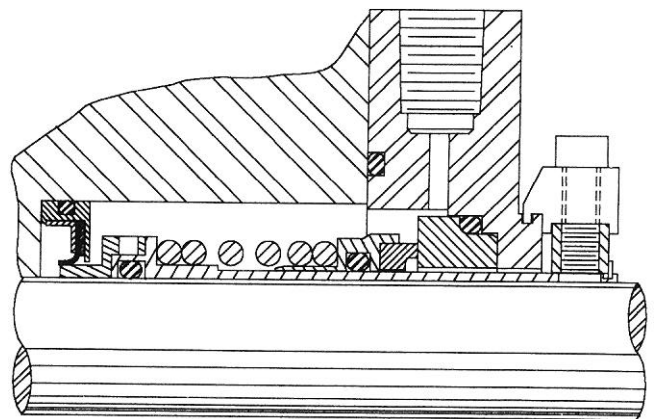
MATERIALS

Metal parts: 316SS
 set screws: Hastelloy C
 spring: 316SS
 O-Rings: fluoroelastomer standard
 Rotary face: chemical grade carbon or tungsten carbide
 stationary face: silicon carbide (SA)

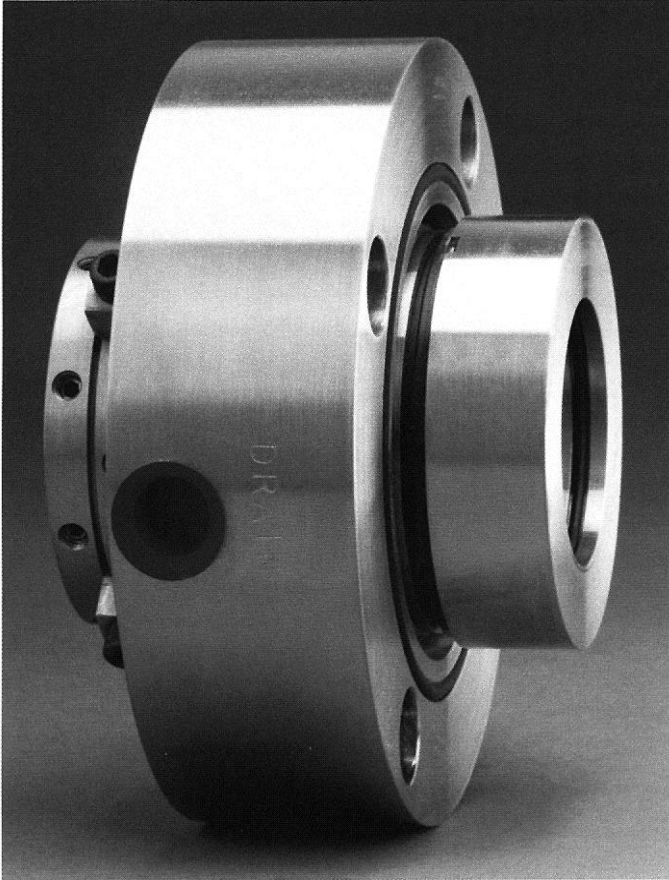
FEATURES	BENEFITS
<ul style="list-style-type: none"> • Preset cartridge seal • Static shaft O-Ring • Heavy duty single spring • Designed to fit ANSI pumps • Cost-effective repair kit 	<ul style="list-style-type: none"> Easy installation No shaft/sleeve fretting Superior dogging resistance No pump/sleeve modification Simple in-field repair



STYLE 35



STYLE 35FS



High speed, high pressure single cartridge seal

The Style 18 mechanical seal is designed for high speed, high pressure applications, specifically condensate and boiler feed pumps. The Style 18 also can be engineered to meet API 610 specifications.

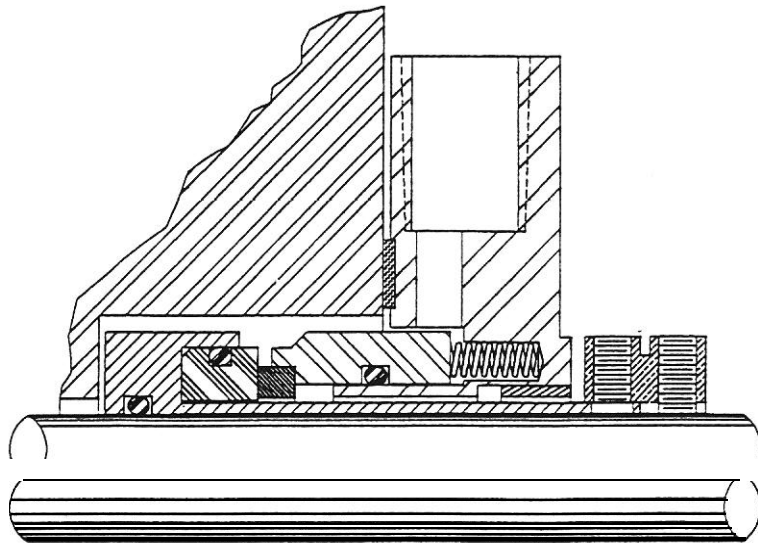
PERFORMANCE

speed: 6500 FPM (33 MPS)
 Pressure: 1200 psig (83 bar)
 Temperature: 400°F (205°C)

MATERIALS

Metal parts: 316SS
 set screws: Hastelloy C
 Springs: Hastelloy C
 O-Rings: fluoroelastomer standard
 Rotary face: silicon carbide (SA)
 Stationary face: metal filled carbon

FEATURES	BENEFITS
• Stationary design	For high speed service (6500 FPM)
• Balanced design	For pressures to 1200 psig
• Silicon carbide seat standard	Best PV factor/runs cooler
• Flush, quench and drain connections standard	Wide range of environmental control options
• Cartridge design	Easy to install



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Single inside rotary

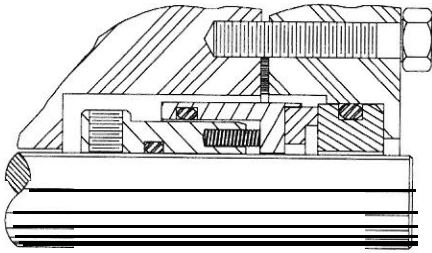
Designed for a wide range of chemicals and products of vastly different concentrations, temperatures, viscosities and pressures; it is especially recommended for slurry and abrasive applications.

PERFORMANCE

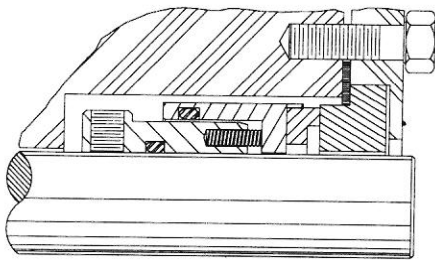
speed: 5000 FPM (25.5 MPS)
 Pressure: 28" (700mm Hg) Hg vacuum to 400 psig (28 bar) depending on speed and pressure
 Temperature: -20°F (-30°C) to +400°F (+205°C) with fluoroelastomer O-Ring standard; -65°F (-55°C) to +300°F (+150°C) with EPR O-Ring; 0°F (-20°C) to +500°F (+260°C) with Kalrez® O-Ring (optional)

MATERIALS

Metal parts: 316SS standard
 Set screws: Hastelloy C
 Springs: Hastelloy C
 O-Rings: fluoroelastomer standard
 Rotary face: chemical grade carbon, tungsten carbide



STANDARD O-RING SEAT



STANDARD "L" SHAPE SEAT



FEATURES

- Balanced design
- Isolated springs
- Static shaft O-Ring
- Fits all ANSI pumps

BENEFITS

- High psig capability
- Prevents clogging
- No shaft/sleeve wear
- No pump modification

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Single outside rotary

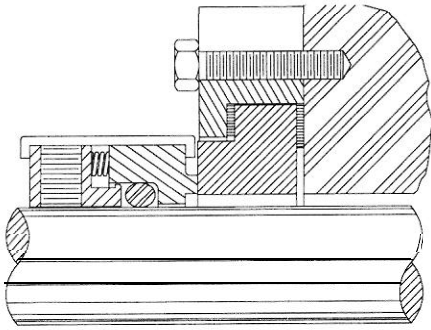
The Style 16 mechanical seal is an outside mounted seal for corrosive applications.

PERFORMANCE

Speed: 2500 FPM (12.7 MPS)
 Pressure: 150 psig (10 bar)
 Temperature: 400°F (205°C)

MATERIALS

Metal parts: 316SS
 Set screws: Hastelloy C
 Springs: Hastelloy C
 O-Ring: fluoroelastomer standard
 Rotary face: chemical grade carbon, other options available



FEATURES	BENEFITS
<ul style="list-style-type: none"> ● Outside mounted ● Preset ● Balanced design ● Split drive collar option ● Metal parts isolated from media 	<ul style="list-style-type: none"> Accessible for cleaning and resetting No measuring required Withstands up to 150 psig Suitable for plastic or coated shafts Eliminates corrosion

STYLE 30



External mounted rotary for hostile services

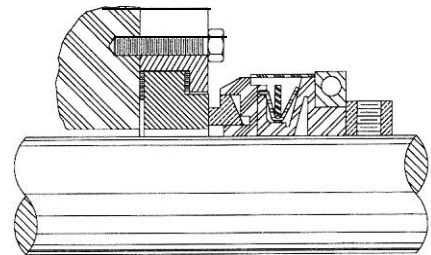
The seal for hostile chemical environments and food processes where contamination is undesirable.

PERFORMANCE

Speed: 1500 FPM (7.5 MPS)
 Pressure: 75 psig (5 bar)
 Temperature: 212°F (100°C)

MATERIALS

Metal parts: 316SS
 set screws: 316SS
 Rotary face: filled PTFE, chemical grade carbon



FEATURES	BENEFITS
<ul style="list-style-type: none"> ● Unique PTFE bellows design ● Replaceable rotary seal ring ● Unitized construction ● Optional faces available 	<ul style="list-style-type: none"> No metal parts in contact with product Easy in-field repair Easy to install Seal can be designed for specific customer needs

STYLE 60



Metal bellows rotary

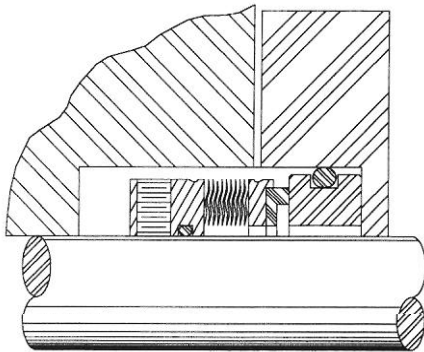
The metal bellows seal design eliminates dynamic O-Rings and conventional springs. It is the logical choice for multi-purpose seal applications.

PERFORMANCE

speed: 5000 FPM (25.5 MPS)
 Pressure: 300 psig (20 bar) (vacuum to 30" Hg) (750mm Hg)
 Temperature: +400° F (+205° C)

MATERIALS

Metal parts: 316SS, AM-350 bellows, Hastelloy C (optional)
 set screws: Hastelloy C
 O-Rings: fluoroelastomer standard
 Rotary face: chemical grade carbon standard; nickle bound tungsten carbide optional



FEATURES

- Inherently balanced
- Self-cleaning design
- No dynamic secondary seal
- Choice of bellows

BENEFITS

Less heat generated at seal face
 No springs to clog
 Eliminate seal hang-up and fretting
 Optional metallurgies satisfy wide range of applications
 Compatible with most existing stuffing box designs

STYLE 65

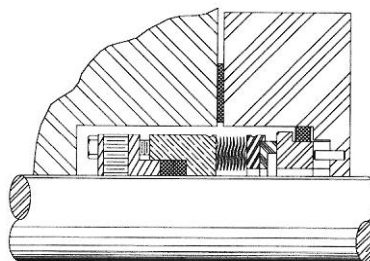


High temperature metal bellows rotary

Model 65 is ideally suited for the high-temperature service conditions found in today's chemical, petrochemical, refinery and power generation industries.

PERFORMANCE

speed: 5000 FPM (25.5 MPS)
 Pressure: 300 psig (20 bar) (vacuum to 30" Hg) (750mm Hg)
 Temperature: +800° F (+425° C)



MATERIALS

Metal parts: 316SS, AM-350 bellows, Hastelloy C
 set screws: Hastelloy C
 Rotary face: chemical grade carbon standard; tungsten carbide optional

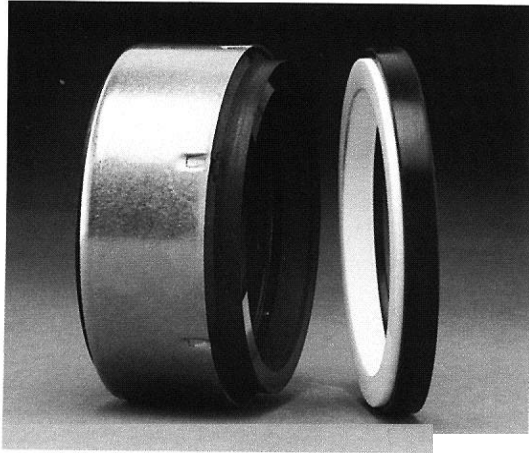
FEATURES

- Inherently balanced
- Self-cleaning design
- No dynamic secondary seals
- Choice of bellows
- CROSS
- GRAPH-LOCK® secondary seal

BENEFITS

Less heat generated at seal face
 No springs to clog
 Eliminates seal hangup and fretting
 Optional metallurgies satisfy wide range of applications
 Compatible with most existing stuffing box designs
 High temperature capability

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Singe spring rubber bellows seal assembly

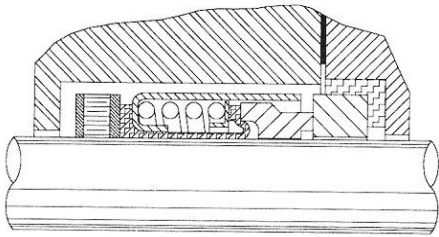
The FLUIDTEC PK" seal provide economic an&efficient sealing. The PK features the proven single spring, rubber bellows design protected by a stainless steel outer shell.

PERFORMANCE

Speed: 2500 FPM (12.7 MPS)
 Pressure: 150 psig (10 bar) (vacuum to 28" Hg) (750mm Hg)
 Temperature: to +400°F(+205°C)

MATERIALS

Metal parts: 316SS
 Springs: stainless steel
 Bellows: fluoroelastomer or nitrile
 Faces: carbon vs. ceramic, tungsten carbide optional. See price list for other material options.



FEATURES

- Unitized construction
- Standard Viton bellows
- Short operating length
- Fully enclosed single spring
- Carbon face flexibility
- Tungsten carbide option

BENEFITS

- No loose parts to inventory or misplace
- Chemical compatibility of fluoroelastomer
- Can be used in shallow stuffing boxes
- Helps prevent dogging in dirty environments
- Rotary face can float to compensate for misalignment
- Handles abrasive applications

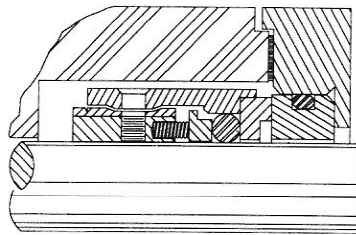
STYLE 10

Versatile design for a range of services

The Style 10 seal can be mounted inside or outside the stuffing box, or as a single or double seal.

PERFORMANCE

speed: 5000 FPM (25.5 MPS)
 Pressure: to 250 psig (17 bar) mounted inside;
 to 50 psig (3 bar) mounted outside
 Temperature: -20°F (-30°C) to +400°F (+205°C)



STYLE 10 inside mount

MATERIALS

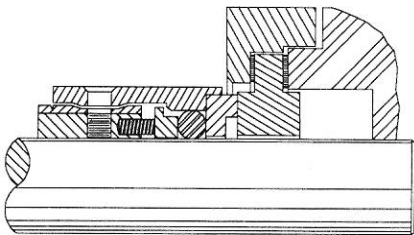
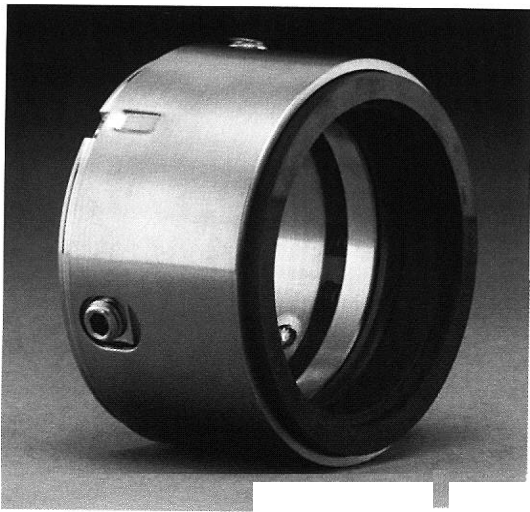
Metal parts: 316SS
 set screws: 316SS
 Springs: Hastelloy C
 O-Rings: fluoroelastomer standard
 Rotary face: chemical grade carbon standard, tungsten carbide optional

FEATURES

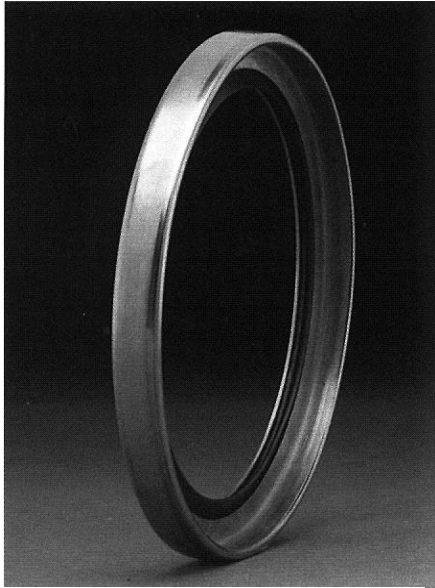
- Compact construction
- Can be used inside or outside stuffing box, single or double
- Factory repairable
- Interchangeable secondary seals, Viton or TFE

BENEFITS

- For use in small stuffing boxes or where multiple seals are needed
- Adaptable to many applications
- Reuseable seal components
- Capable of handling a wide range of chemical applications



STYLE 10 outside mount



A new concept in rotary shaft seal design

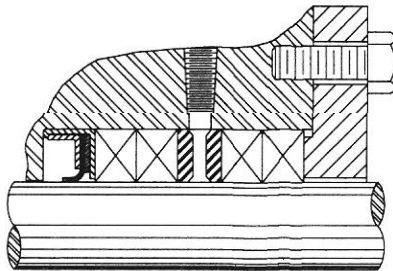
The FLUIDTEC P/S®-I is a simple, versatile and economic replacement for conventional lip seals, restriction bushings, compression packings, and mechanical seals.

The success of P/S technology

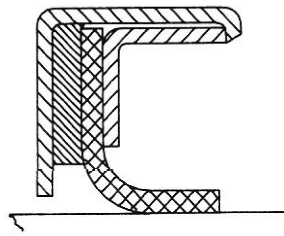
stems from the utilization of the proprietary GYLON® process. Components are selected and combined to provide superior positive sealing and long service life in a wide range of applications.

FEATURES	BENEFITS
<ul style="list-style-type: none"> ● GYLON sealing element 	Chemical resistance of PTFE and carbon. Dry running capability. Unaffected by axial end play or torque. Anti-stick characteristics. Positive sealing in both vacuum and pressure. Excellent exclusion capacity
<ul style="list-style-type: none"> ● Optional shell materials 	Applicable to a wide range of adverse chemical applications
<ul style="list-style-type: none"> ● Simple construction 	Needs only limited space, easy to install. Very versatile: vertical/horizontal, small or large shafts, static to high speed applications.

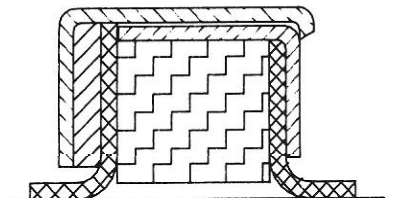
P/S and GYLON are registered trademarks of Garlock Inc



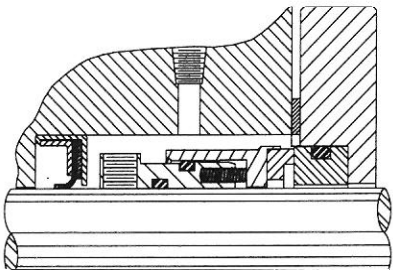
P/S-I Seal used as product excluder with compression packing



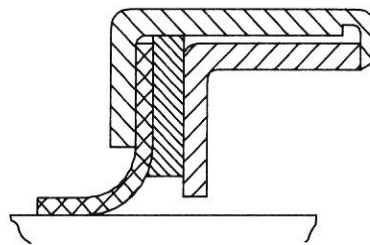
standard configuration



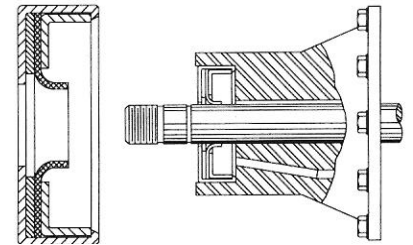
double opposing lip



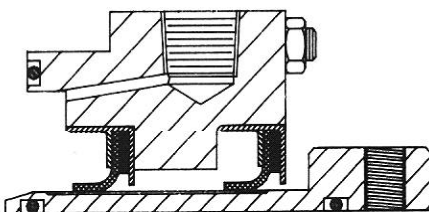
P/S-I Seal used as product excluder with mechanical seal



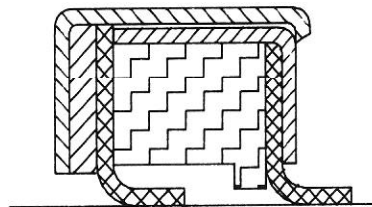
reverse lip



P/S-I Seal used as primary seal



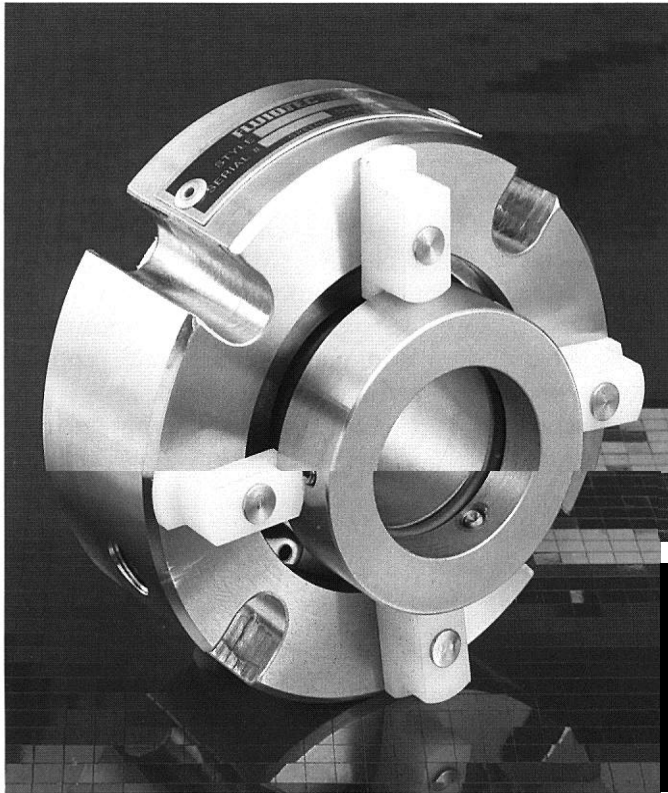
Cartridge double P/S-I Seal



double lip

WARNING: Properties/applications shown throughout this brochure are typical. Your specific applications should not be undertaken without independent study and evaluation for suitability. For specific applications consult FLUIDTEC. Failure to select the proper products could result in property damage and/or serious personal injury. Performance data published in this brochure has been developed from field testing, customer field reports and/or laboratory testing. While the utmost care has been used in compiling this brochure, we assume no responsibility for errors. Specifications subject to change without notice. This edition cancels all previous issues. Subject to change without notice.

See P/S-I & P/S-II engineering brochure for additional performance and installation data



Multiplelippedcartridge seal

The FLUIDTEC P/S®-II sealing system builds on the concept of the P/S-I by specifically engineering various lip configurations to meet the special challenges of today's and tomorrow's industry.

Depending upon the requirements, the configuration of the sealing elements can be tailored to serve a variety of purposes. This results in a specific, but proven, solution for each application. Seal performances can actually be checked through the inclusion of various monitoring devices in the seal housing. Today's environmental concerns can be met with cartridge type P/S-II seals.

PERFORMANCE P/S-I & P/S-II

- Pressure: 150 psig (10 bar)
- Vacuum: 28" Hg
- Temperature: -130°F (-70°C) to +480°F (+250°C)
- Surface speed: up to 1500 FPM (7.5 MPS)
Over 1500 FPM consult engineering

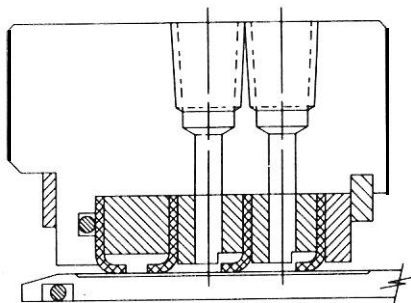
FEATURES

- Simple sealing elements
- Machined gland
- coated sleeve
- Sealing elements not housed in metal shell. Lips are supported by PTFE spacers within an engineered gland

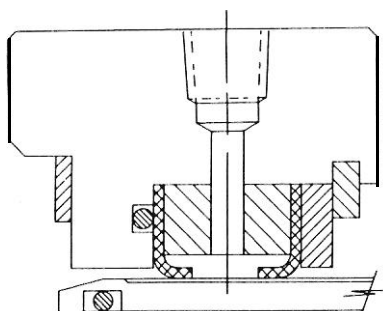
BENEFITS

- Easy, economical in-field repair. Non-clogging in viscous materials*. Sealing element can be placed in various arrangements
- Engineered to fit a wide variety of equipment and applications
- Lips will not damage equipment
- Allows extreme design versatility; facilitates quick, simple in-plant repair

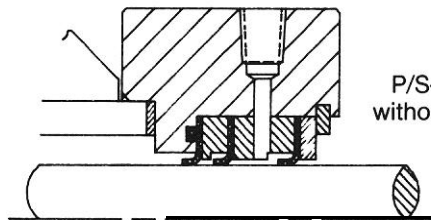
*The P/S-II has proven to be very effective in positive displacement pumps moving viscous materials (often with no environmental controls).



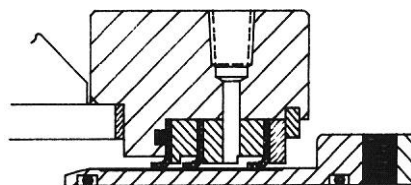
P/S-II Seal
vacuum and tandem



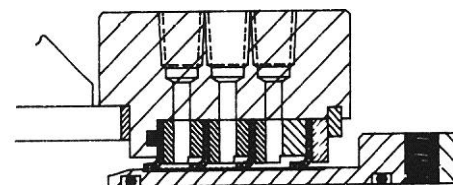
P/S-II Seal
Double



P/S-II Seal
without sleeve



P/S-I Seal
with sleeve



P/S-II Seal with sleeve
and staged taps

FLUIDTEC offers a full range of stationary seats, including all standard designs, sizes and materials. In addition, FLUIDTEC offers “on-standard shapes and sizes as well as additional materials including stainless steel, “i-resist, bronze and coated faces.

MATERIALS

Silicon Carbide . .

The standard for FLUIDTEC in the majority of applications. Silicon carbide offers the widest range of chemical resistance of any face material readily available today. Additionally, it is extremely hard, giving it excellent abrasion resistance. Silicon carbide also offers the highest heat transfer characteristics essential for effective sealing of high temperature liquids. Available in three grades.

Ceramic . . .

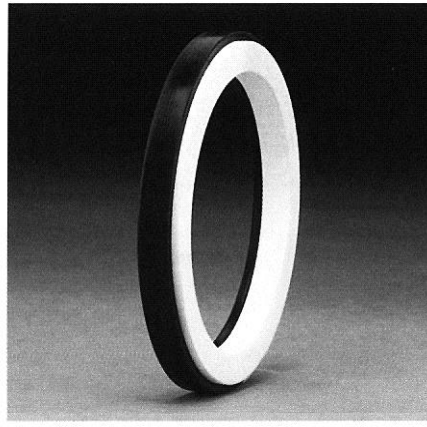
has two advantages that make it the most commonly used seat material. It is nearly chemically inert and costs substantially less than other materials. Ceramic performs well in many applications. Other materials should be considered for thermally variable service such as hydrocarbon process applications or where elevated temperatures tend to *vaporize media*.

Tungsten Carbide . . .

recommended for those hydrocarbon process applications destructive to ceramic materials. With good thermal shock properties, tungsten carbide also transmits heat well, minimizing media vaporization at seal faces. A hard, strong, metallic material, it easily withstands abrasive service.



STYLE 01
standard O-ring seat



STYLE 04
standard square shaped seal
(cup mounted)



STYLE 02
standard “T” shaped seat



STYLE 08
standard “L” shaped seat

O-Ring and cup mounted seats are designed to be press-fitted into a machined counterbore in the gland. Before installing, the O-Ring or cup should be lubricated.

These seats are designed to be clamped against the stuffing box face. Shims should be used to properly center seat to shaft.

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