



DATE: January 3, 1977 - #2

TO: All Domestic and International Distributors, ☐ A.W. Chesterton Co.
Specialists, and Salesmen
FROM: Robert E. Rockwood

☐ Chesco, Inc.

EXPORT SALES CORP.

SUBJECT: 241 Seal

Many of you have already been informed about the 241 Seal. The 241 is a technically advanced double seal concept which should allow us to make a significant impact in the double seal market.

With this letter, I am including a copy of the 241 literature. We have tried to answer the major questions that you might have in the write-up. Please note the exclusive features of the 241.

We are going to initially manufacture eight shaft sizes. These are the eight most popular sizes. They are as follows:

<u>Inch</u>	<u>Metric</u>
1 1/2" shaft size	35 mm
1 3/4" " "	45 mm
1 7/8" " "	55 mm
2" " "	60 mm

You can order any combination of size(s) you wish as long as it is a minimum of four units. When you order this by January 31, 1977, you qualify for the Chesterton "no-risk" program and are guaranteed shipment by May 31, 1977. Seals ordered after January 31, 1977, will not be covered under the no risk (full credit for seals returned after being stocked for six months) program. Also delivery may be delayed significantly when seals are ordered after January 31, 1977, because the manufacturing tooling, schedules, and raw materials will have already been set for the initial run.

Don't miss out; let's make this the year of the DOUBLE SEAL and DOUBLE SALES.

RER:jrv

MIDDLESEX INDUSTRIAL PARK - ROUTE 93, STONEHAM, MASS. 02180 U. S. A.

(Please confine each letter to one subject)

71640 F.I.

COLORITE 018325

LIST PRICE FOR CHESTERTON DISTRIBUTORS

(less standard discount)

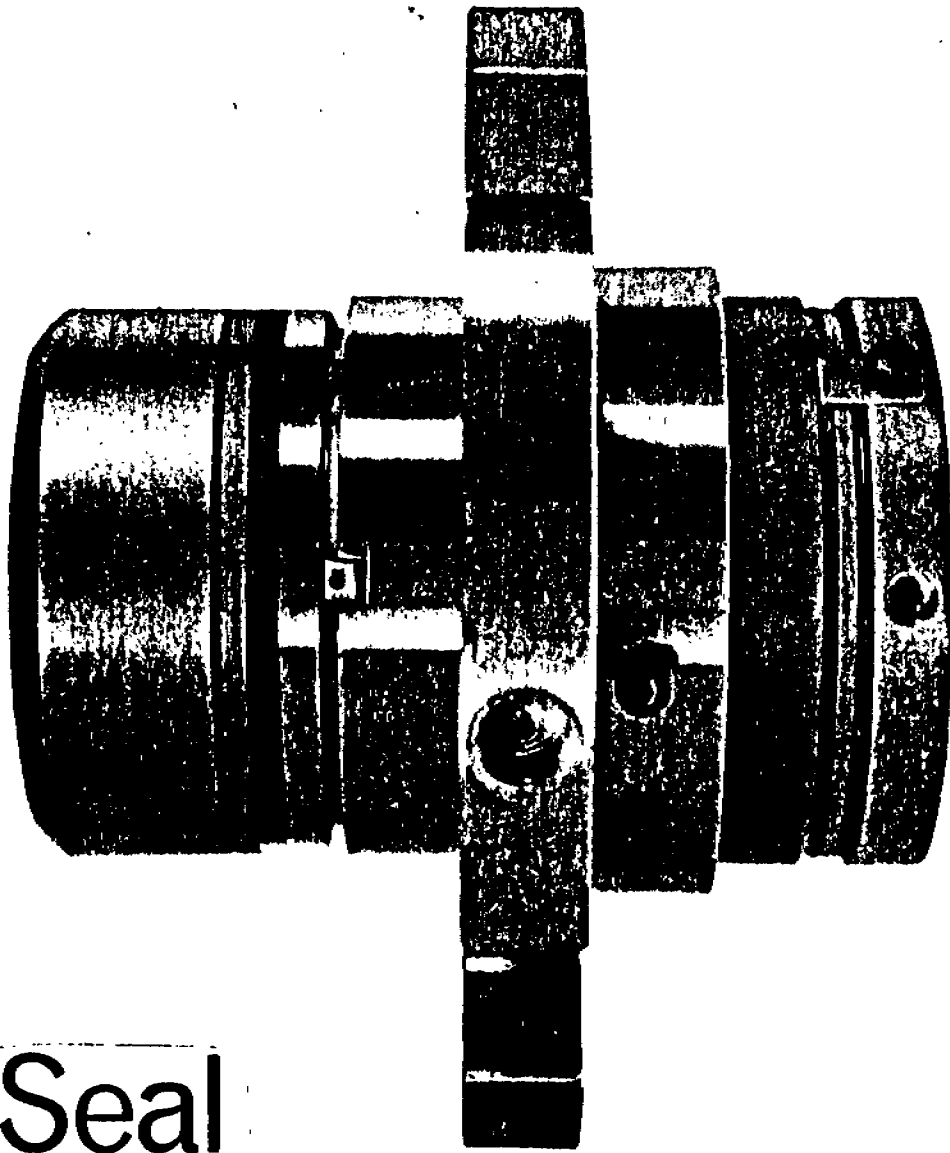
<u>Shaft Size</u>	<u>List Price</u>	<u>Comments</u>
1 1/2	\$663.00	to be manufactured by 5/31/77
1 5/8	\$688.00	will be built when demand requires
1 3/4	\$713.00	to be manufactured by 5/31/77
1 7/8	\$741.75	↓
2	\$770.50	
2 1/8	\$801.15	will be built when demand requires
2 1/4	\$848.70	↓
2 3/8	\$877.45	
2 1/2	\$906.20	
2 5/8	\$936.85	
2 3/4	\$967.55	

LIST PRICE FOR CHESTERTON DISTRIBUTORS

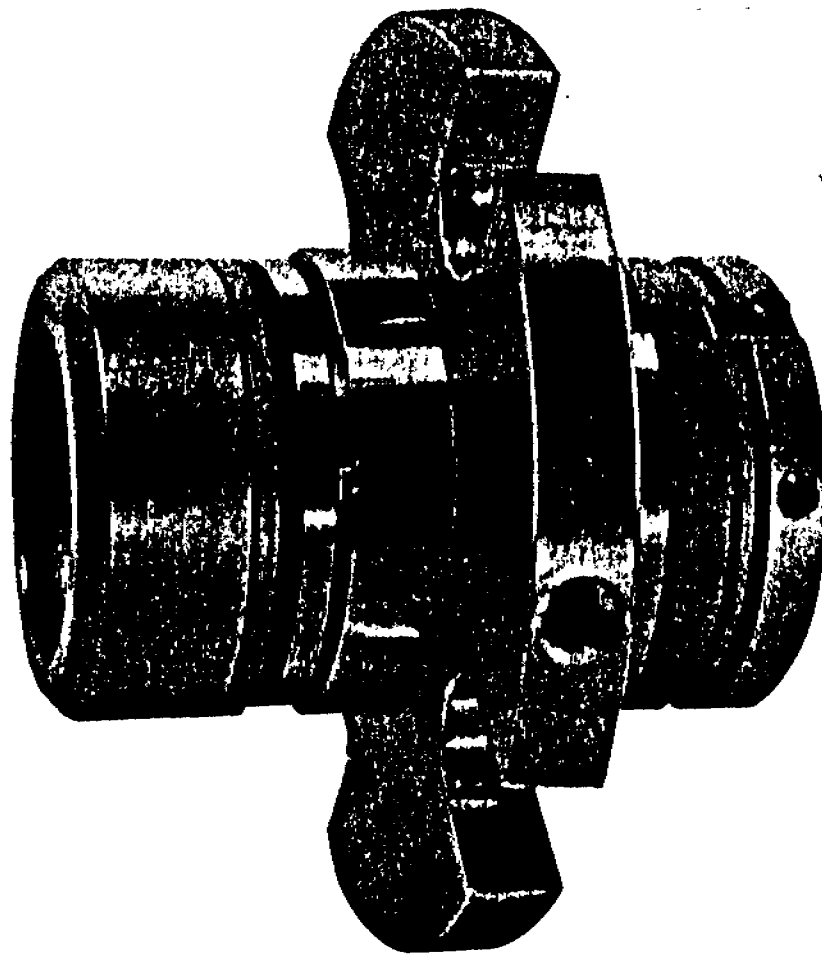
LESS STANDARD DISCOUNT

<u>Shaft Size</u>	<u>List Price</u>	<u>Comments</u>
35mm	\$643.00	To be manufactured by 5/31/77
40mm	\$688.00	Will be built as demand requires
45mm	\$713.00	To be manufactured by 5/31/77
50mm	\$770.50	Will be built as demand requires
55mm	\$801.15	To be manufactured by 5/31/77
60mm	\$877.45	To be manufactured by 5/31/77
65mm	\$936.85	Will be built as demand requires

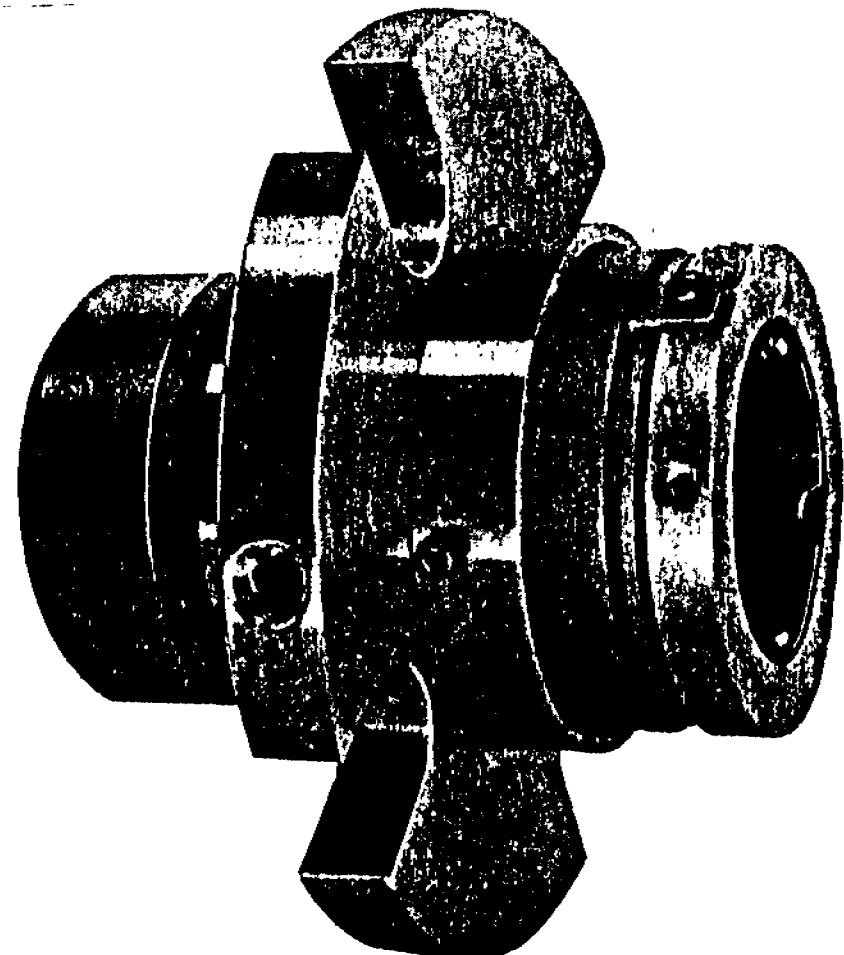
241 Seal



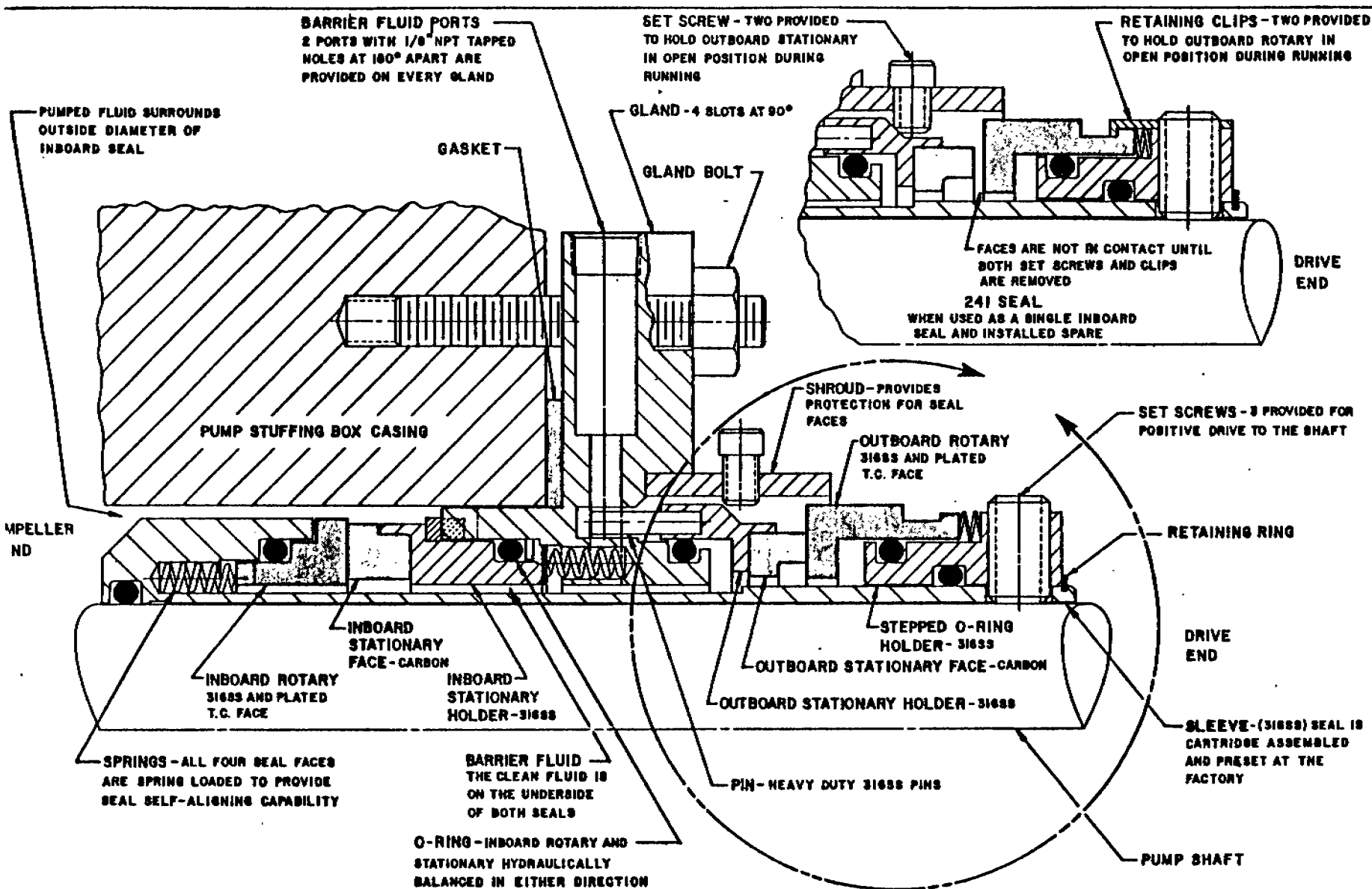
241 Seal



INBOARD
(Impeller)
END



OUTBOARD
(Motor)
END



241 DOUBLE BALANCED DOUBLE SEAL

USES FOR THE 241 (TWO-FOR-ONE) SEAL

1. Batch Process (Installed Spare)
2. Fluids with a specific gravity $\leq .6$
3. Non-lubricating fluids such as light hydrocarbons and gases
4. Pieces of equipment that are hard to tear down (double ended pumps)
5. Dangerous or toxic fluids
6. Pumps that require cartridge mount for installation
7. Vacuum Applications
8. Compressors

FEATURES AND BENEFITS

- | | |
|--|---|
| 1. Fits AVS Pumps | No alteration of equipment. |
| 2. Cartridge Mount | No installation dimensions or measurements required. |
| 3. Centering Clips | Centers off the shaft. |
| 4. Clips provided to hold outboard faces open during equipment running | Can be used as an installed spare.
Cuts tear-down times in half. |
| 5. Pumped fluid is on top of inboard seal | A. Centrifugal force throws particles away from faces.

B. Pumped fluid can be hooked up to suction or discharge side of pump for constant circulation in seal area. |
| 6. Double Balanced Inboard Seal | A. Seal automatically adjusts and hydraulically balances itself whether barrier fluid is higher or lower pressure then pumped.

B. Allows seal to be used for a tandem arrangement (breaking down pressures). |

- C. Inboard stationary cannot blow forward and bottom out seal.
 - D. High reverse pressure cannot cause faces to open.
- 7. Self Aligning
 - A. Can take 3 to 4 times the misalignment of standard seals.
 - B. Cuts the motion of each face in half, lowering heat buildup and wear.
 - C. One face could completely freeze up and opposing face is still able to make necessary adjustments for effective sealing.
 - D. All four faces are spring loaded which act as shock absorbers to minimize breakage in the case of short-span cavitation which causes excessive vibration.
- 8. Springs out of the fluid
 - Minimizes clogging and hanging up of seal.
- 9. Heat Reduction
 - Both inboard and outboard seals are balanced. The pumped fluid can be circulated in the stuffing box. The outboard seal is completely exposed to circulating ambient air. These three combined allow for a cool running double seal which allows the customer to set up the barrier fluid without the need of external circulation pumps.
- 10. Non-Fretting
 - The 241 Seal will not damage any pump sleeves.

241 SEAL

QUESTIONS YOU MIGHT ASK

1. When will the seal be ready for delivery?

We will start manufacturing in late January and are scheduled for completion at the end of May.

2. What sizes will be available?

Initially we will provide the four most popular sizes of seals. These are 1-1/2", 1-3/4", 1-7/8", and 2" shaft diameters.

3. What are the seal limits?

Until further testing is completed we are putting the following limitations on the seal.

Pressure	- 400 PSIG
Temperature	- Limit of the o'ring material
Speed	- 4000 RPM

4. How much space is required to accommodate the seal?

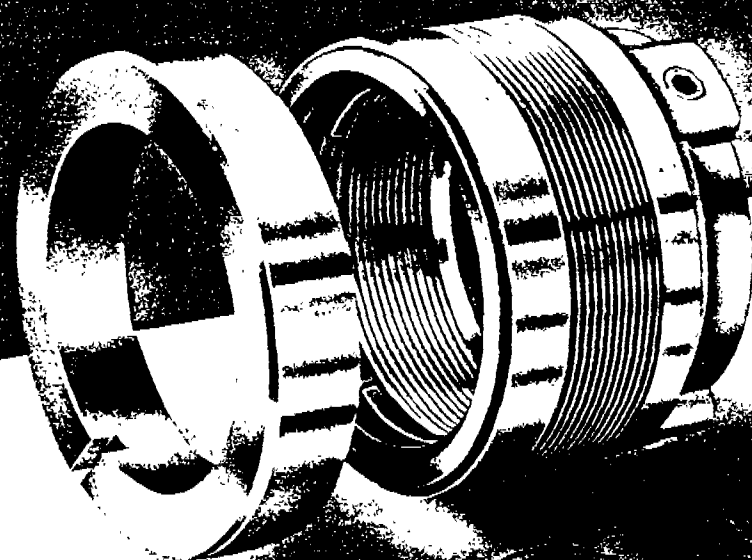
The 241 will fit into standard AVS (ANSI) pumps. It requires a 3/8" cross-section. Including the minimum clearance it needs a depth of stuffing box of 2-1/32 inches and a distance to first obstruction of 2-3/32 inches.

5. What materials will be supplied?

Initially, in order to meet the widest range of field applications, the 241 Seal will be supplied in 316SS base metallurgy. The seal faces will be T.C. plating versus carbons. Installed o'rings of Viton rubber and Hastelloy "C" springs will also be supplied.

SEALOL/CHEMPRO 676 welded metal bellows MECHANICAL SEAL

*NEW for process pumps and equipment
— lower cost — better performance*



All Stainless Steel

*Sealol — designers and developers
of the original welded metal bellows seal*

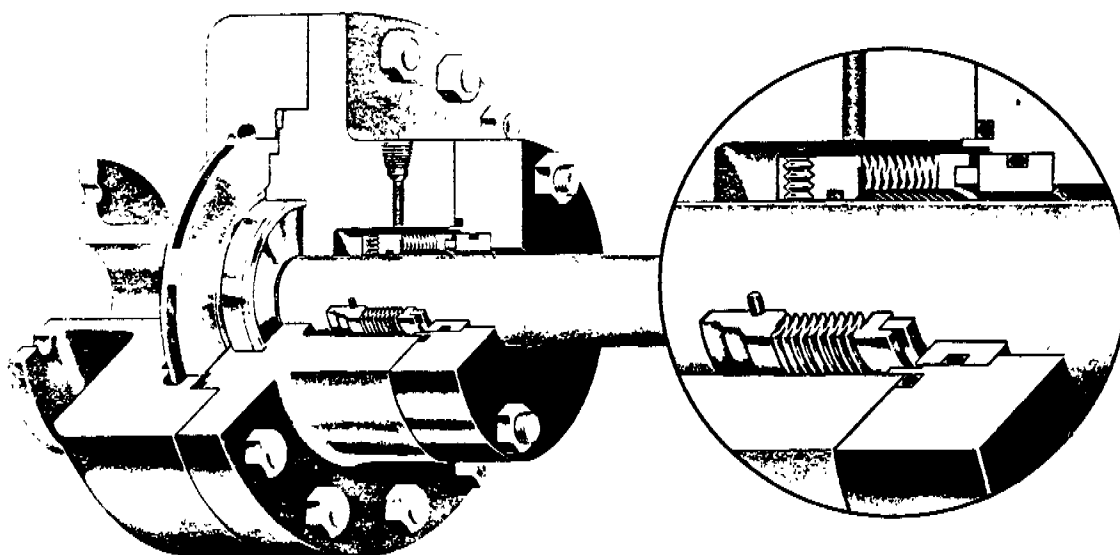
In the early 1950's, Sealol/Chempro pioneered in the design and development of welded metal bellows seals. Those first bellows seals were used to seal high temperature oils (500°F plus) in the newly emerging jet engines.

Today, Sealol/Chempro bellows seals are in use throughout the world, not only

in jet engines but in pumps, compressors, agitators, mixers . . . wherever a rotating shaft *must* be sealed. And the new 676 is the newest addition to this line of time-tested bellows seals. Incorporating more than two decades of engineering refinements, the 676 offers you a number of important advantages.

Lower Cost — *With new automated production techniques, Sealol-Chempro is now able to offer its field-tested 676 welded metal bellows seal at minimum cost.*

Better Performance — *with a data bank containing thousands of Sealol/Chempro bellows seal applications, our engineering staff has an invaluable resource. Their recommendations to you are based on field performance as well as design theory.*



Corrosion resistant — all stainless steel construction

Simple design — only one moving part

No shaft fretting — because there are no sliding wedges or o-rings

Pressure balanced — without steps in the shaft or sleeve

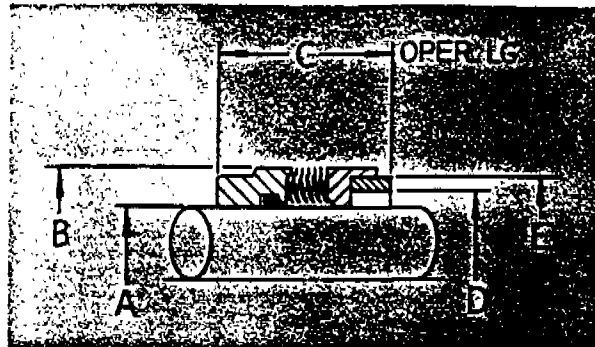
Easy to install — tighten three set screws and that's it

No seal hang-up — no loose parts, springs, etc., to clog and gum up

Self-cleaning — because of open design and centrifugal action

ENGINEERING

676 Seal



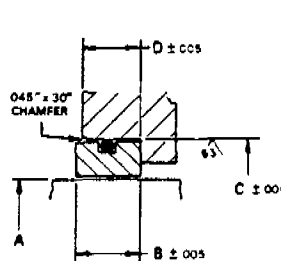
SEAL SIZE	A - .000 + .002	B - .002	C ± .030	D MINIMUM	E MAXIMUM
-12	.750	1.312	1.250	.982	1.187
-14	.875	1.437	1.250	1.108	1.314
-15	.937	1.500	1.250	1.171	1.376
-16	1.000	1.562	1.250	1.233	1.439
-18	1.125	1.687	1.250	1.360	1.566
-20	1.250	1.812	1.312	1.514	1.720
-22	1.375	1.937	1.437	1.639	1.846
-24	1.500	2.062	1.437	1.714	1.971
-26	1.625	2.187	1.437	1.839	2.096
-28	1.750	2.312	1.437	1.964	2.221
-30	1.875	2.437	1.500	2.088	2.346
-32	2.000	2.562	1.500	2.214	2.472
-34	2.125	2.687	1.500	2.338	2.597
-36	2.250	2.812	1.562	2.464	2.723
-38	2.375	2.937	1.562	2.588	2.848
-40	2.500	3.187	1.562	2.788	3.098
-42	2.625	3.312	1.625	2.913	3.223
-44	2.750	3.437	1.625	3.038	3.349
-46	2.875	3.625	1.687	3.192	3.504
-48	3.000	3.750	1.687	3.318	3.629
-50	3.125	3.875	1.750	3.433	3.774
-52	3.250	4.000	1.750	3.558	3.899
-54	3.375	4.125	1.750	3.683	4.024
-56	3.500	4.250	1.875	3.808	4.149
-58	3.625	4.375	1.875	3.933	4.274
-60	3.750	4.500	1.875	4.058	4.399
-62	3.875	4.625	1.875	4.183	4.524
-64	4.000	4.750	1.875	4.308	4.629

Materials of Construction

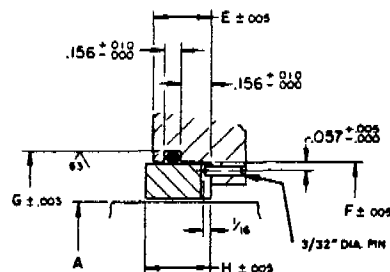
bellows	AM 350 stainless steel
end fittings	316 stainless steel
static packing	Viton, EPR, buna or TFE jacketed "O" ring
rotary seal face	carbon, tungsten carbide
mating ring	Sealide, carbon, tungsten carbide, Ni-Resist, alumina oxide, alumina oxide coating on a base metal.

DIMENSIONS

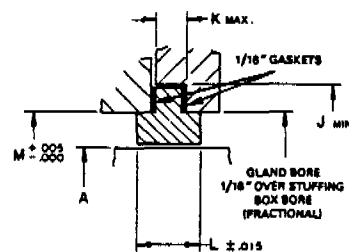
Gland Cavity



**"O" Ring Groove
Mating Ring**



**Block
Mating Ring**



**Clamped "T"
Mating Ring**

Seal Size	A	B	C	D	E	F	G	H	Seal Size	A	Dimensional Code	J	K	L	M
	Nominal Shaft Dia.	Mating Ring Axial Length	Gland Counter-bore Dia.	Gland Counter-bore Depth	Gland Counter-bore Depth	Gland Counter-bore Dia.	Groove Dia.	Mating Ring Axial Length		Nominal Shaft Dia.		Gland Counter-bore Dia.	Mating Ring Axial Length	Stuffing Box Bore Dia.	
-12	.7500	.406	1.375	.344	.375	1.260	1.484	.437	-12	.7500	C ₁	1.843	.437	.750	1.437
-14	.8750	.406	1.500	.344	.375	1.385	1.609	.437	-14	.8750	C	1.968	.375	.687	1.562
-15	.9375	.437	1.562	.375	.375	1.447	1.671	.437	-15	.9375	C	1.968	.437	.750	1.562
-16	1.000	.437	1.625	.375	.437	1.510	1.734	.500	-16	1.000	C ₁	2.031	.437	.750	1.625
-18	1.125	.437	1.750	.375	.437	1.635	1.859	.500	-16		C ₃	2.093	.437	.750	1.750
-20	1.250	.437	1.875	.375	.437	1.885	2.109	.500	-18	1.125	C ₁	2.156	.437	.750	1.750
-22	1.375	.437	2.000	.375	.437	2.010	2.234	.500	-18		C ₃	2.281	.437	.750	1.875
-24	1.500	.437	2.125	.375	.437	2.135	2.359	.500	-18		C ₄	2.000	.593	.812	1.750
-26	1.625	.500	2.375	.437	.437	2.260	2.484	.500	-18		C ₆	2.281	.562	.875	1.750
-28	1.750	.500	2.500	.437	.437	2.385	2.609	.500	-20	1.250	C ₂	2.406	.437	.750	2.000
-30	1.875	.500	2.625	.437	.437	2.510	2.734	.500	-22	1.375	C ₁	2.406	.437	.750	2.000
-32	2.000	.500	2.750	.437	.437	2.635	2.859	.500	-24	1.500	C ₂	2.781	.437	.750	2.250
-34	2.125	.562	3.000	.500	.500	2.760	2.984	.562	-26	1.625	C ₁	2.969	.437	.750	2.437
-36	2.250	.562	3.125	.500	.500	2.885	3.109	.562	-26		C ₂	3.031	.437	.750	2.500
-38	2.375	.562	3.250	.500	.500	3.135	3.359	.562	-28	1.750	C ₁	3.031	.437	.750	2.500
-40	2.500	.562	3.375	.500	.562	3.260	3.484	.625	-28		C ₃	2.906	.437	.750	2.500
-42	2.625	.625	3.375	.562	.562	3.385	3.609	.625	-28		C ₅	3.031	.562	.875	2.500
-44	2.750	.625	3.500	.562	.562	3.510	3.734	.625	-30	1.875	C ₂	3.156	.437	.750	2.625
-46	2.875	.625	3.750	.562	.562	3.635	3.859	.625	-30		C ₃	2.875	.562	.937	2.625
-48	3.000	.625	3.875	.562	.562	3.760	3.984	.625	-32	2.000	C ₁	3.406	.562	.875	2.875
-50	3.125	.781	4.000	.656	.562	3.885	4.109	.625	-34	2.125	C ₂	3.406	.562	.875	2.875
-52	3.250	.781	4.125	.656	.562	4.010	4.234	.625	-36	2.250	C ₁	3.781	.562	.875	3.250
-54	3.375	.781	4.250	.656	.562	4.135	4.359	.625	-38	2.375	C ₁	3.906	.562	.875	3.375
-56*	3.500	.781	4.375	.656	.625	4.260	4.484	.687	-40	2.500	C ₁	4.031	.562	.875	3.500
-58*	3.625	.781	4.500	.656	.625	4.260	4.484	.687	-42	2.625	C ₁	4.156	.562	.875	3.625
-60	3.750	.781	4.625	.656	.625	4.510	4.734	.687	-44	2.750	C ₁	4.281	.562	.875	3.750
-62	3.875	.781	4.750	.656	.625	4.635	4.859	.687	-46	2.875	C ₁	4.406	.562	.875	3.875
-64	4.000	.781	4.875	.656	.625	4.760	4.984	.687	-48	3.000	C ₁	4.531	.562	.875	4.000

*Block mating ring dimensions for -56 and -58 are identical.

for longer seal life...

Specify Sealide® Mating Rings—solid silicon carbide, the hardest known seal face material.

Take full advantage of the capabilities of the 676 seal by specifying Sealide silicon carbide mating rings. They combine extreme hardness with an outstanding resistance to strong corrosives and high temperatures. That's why the 676 seal and Sealide mating rings are a perfect combination.

For Abrasives

Abrasive slurries are no problem when a self-cleaning, non-clog 676 is combined with a Sealide mating ring. The faces are so hard that abrasive particles are quickly pulverized.

For Corrosives

Because Sealide is virtually unaffected by strong chemical action, corrosive applications are limited only by the metal seal components. (Note: For the most difficult applications, consider Sealol/Chempro's all-Hastelloy Type 670 seal.)

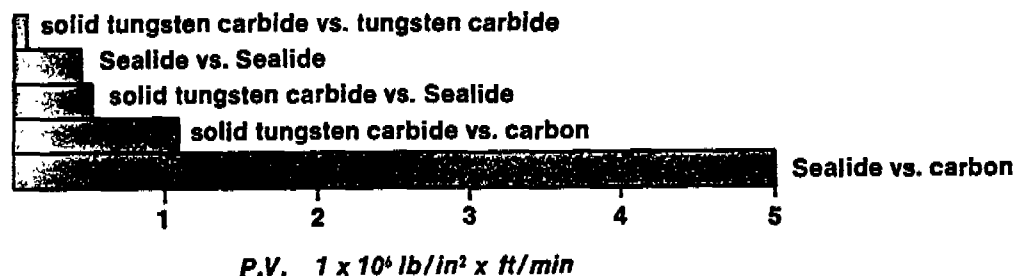
For High Temperatures

Sealide maintains its high material strength up to 2550°F. Because this strength is combined with high heat conductivity and low thermal expansion, Sealide easily withstands repeated thermal shocks.

For High Pressures and High Speeds

Extensive testing has proven Sealide's ability to perform at high PV values.

Maximum Pressure x Velocity Values



How to Order

Please specify

1. media being sealed
2. temperature and pressure in the seal cavity
3. shaft speed and diameter
4. make, size and model number of the pump

676 Seal Operating Limits

Temperatures:

-100°F to +400°F
depending on elastomers

Pressures:

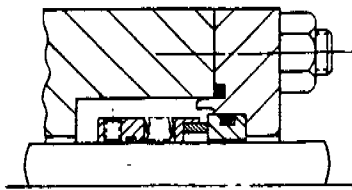
internal mounting
external mounting

vacuum to 300 psi
vacuum to 25 psi or 300
psi when rebalanced

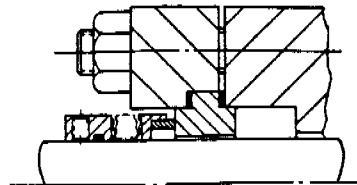
Shaft Speeds:

to 4,000 rpm

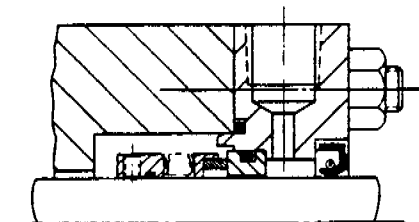
Standard 676 Installations



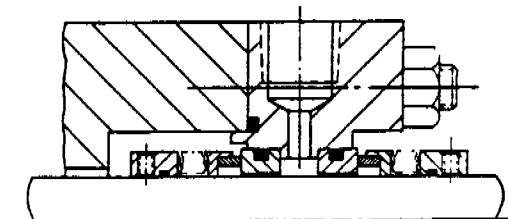
Inside mounted 676 seal. This is the most common installation configuration, allowing use of any mating ring material and any flexible "o" ring compound.



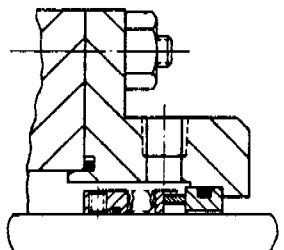
Outside mounted 676 seal. This configuration allows use of the 676 seal where there is insufficient room inside the stuffing box and a "hat" gland is not desirable. Recommended for clean fluids only. The protrusion of the gland beyond the seal faces is known as a "shroud", and prevents spray from the seal faces.



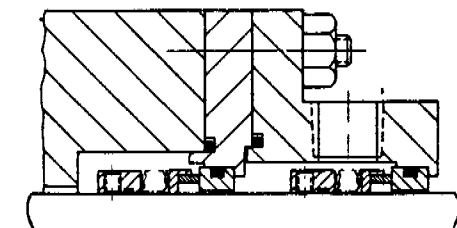
Inside mounted 676 seal with quench gland and lip seal. This gland allows introduction of a quench fluid to prevent crystallization of process fluids at the face.



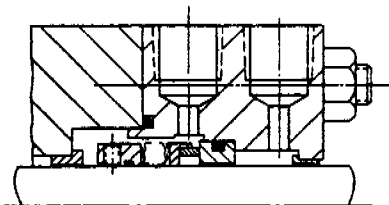
Inside-outside mounted 676 seals. This arrangement is useful for sealing process fluids which have absolutely no lubricating qualities. A barrier fluid is introduced through the gland between the two seals.



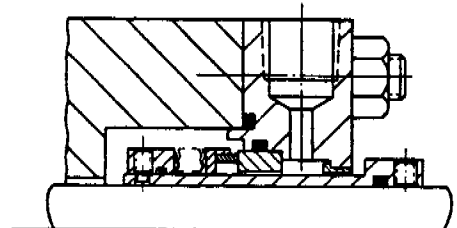
676 seal with "hat" gland. This gland permits seal installation where there is no stuffing box, where the stuffing box is too small to accommodate the seal or where the stuffing box is inaccessible to tools.



Tandem 676 seals. This double seal arrangement is useful for non-lubricating fluids or where redundancy is required for safety reasons.



Inside mounted 676 seal with flush, vent & drain & throttle bushing gland, and throttle bushing in the stuffing box throat. This arrangement allows restriction of flush fluid flow, to control the environment in the seal cavity. A steam quench can be added through the gland vent & drain connections.



676 cartridge seal. Used for double bearing split case horizontal pumps or other applications where the seal cannot be tightened onto the shaft with the set screws once it is in place.

THE  SEALOL GROUP

AN  COMPANY

SEALOL, INC. • CHEMPRO, INC. • ROTARY SEAL CORPORATION

CHEMPRO, INC.

100 Pioneer Ave., Warwick, R. I. 02888

RA#5245 750750

Printed In U.S.A.

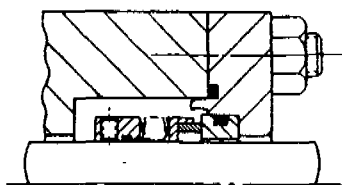
Distributed by:

Your Authorized Distributor
displays this sign

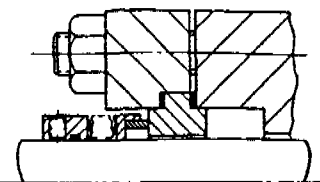


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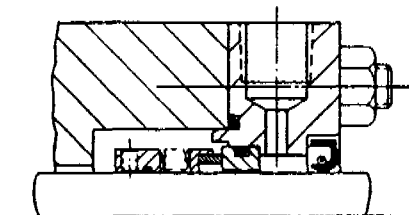
Standard 676 Installations



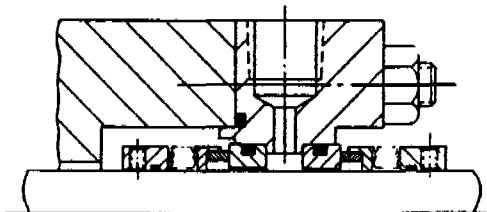
Inside mounted 676 seal. This is the most common installation configuration, allowing use of any mating ring material and any flexible "o" ring compound.



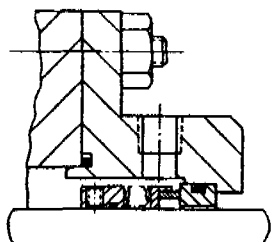
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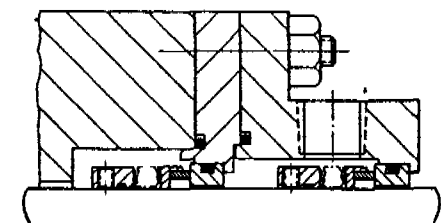
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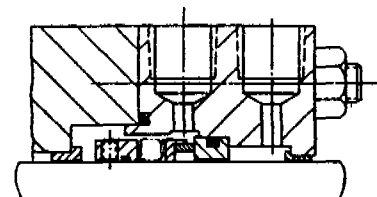
Inside-outside mounted 676 seals. This arrangement is useful for sealing process fluids which have absolutely no lubricating qualities. A barrier fluid is introduced through the gland between the two seals.



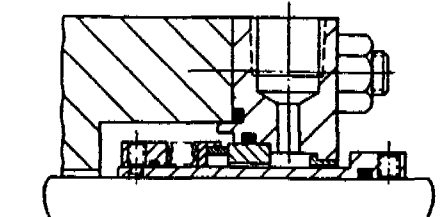
676 seal with "hat" gland. This gland permits seal installation where there is no stuffing box, where the stuffing box is too small to accommodate the seal or where the stuffing box is inaccessible to tools.



Tandem 676 seals. This double seal arrangement is useful for non-lubricating fluids or where redundancy is required for safety reasons.



Inside mounted 676 seal with flush, vent & drain & throttle bushing gland, and throttle bushing in the stuffing box throat. This arrangement allows restriction of flush fluid flow, to control the environment in the seal cavity. A steam quench can be added through the gland vent & drain connections.



676 cartridge seal. Used for double bearing split case horizontal pumps or other applications where the seal cannot be tightened onto the shaft with the set screws once it is in place.

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