# APPLICATIONS

## TRACTOR PTO

PTO applications have one primary challenge, the ingress of fiber debris, either from weeds, straw, or sometimes baler twine. Fiber debris tends to wrap on the PTO shaft and collect next to the seal. That material can get forced into the seals dust lip and then into the main lip causing an aggressive leak.

The T26 design shown here is used to help guard against any ingress of fiber material. The design incorporates a metal guard, sometimes called a weed cutter. This guard has a slight clearance to the shaft and helps to cut up any straw or weeds before it has a chance to present itself at the dust lip.

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Tractor PTO.

Seals are designed to help prevent plant fibers that tend to wrap on the PTO shaft from damaging the main lip.

T26

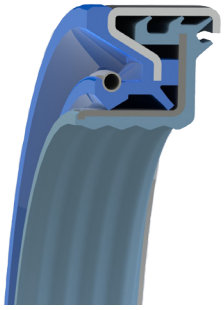
# HIGH CONTAMINATION SEALING DESIGNS

The EVO and TSL series of seals are specifically designed for high contamination applications. Both seals contain multiple lips and a labyrinth type pathway that helps to slow the progression of mud and dirt into the seal itself.

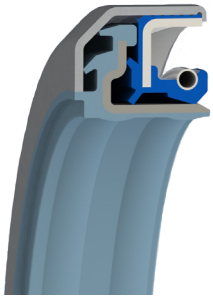
The TSL is a conventional unitized type design, incorporating multiple components that are crimped together forming one single piece for installation. The TSL series come pregreased, and incorporate a seal sleave that eliminates any wear on the shaft surface. The TSL series are very effective at protecting your application from mud and debris.

The EVO series incorporates our patent pending EVO technology, a metal on metal sealing element that keeps large and small contamination from entering into the seal itself. The EVO technology can be used on it's own or incorporated with multiple exclusion lips for improved performance.

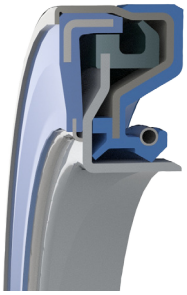




TSL11



TSL9



EVO
(patent pending)

**High Contamination Sealing Designs.**

The EVO and TSL series are specially designed for high contamination applications.

# TRACTOR AXLE - STANDARD FIELD ENVIRONMENT

Tractor axles are known for living in a dirty environment. Dirt and mud can get kicked up by the tires and at times fording through mud is required. This application requires a seal with higher than normal dirt exclusion capabilities.

With this application there are many choices available. Here we are showing a couple of common seals concepts, they can be modified to fit specific applications.

The T26 style shown incorporates a main seal lip for retention of oil in the axle, three dust lips for good dirt and dust exclusion and a metal can excluder that helps to keep large debris and weeds from entering the main lip.

The OUB2 style shown utilizes four long lips that run on a stamped metal insert. This style has a good life in dust/dirt environments when a greasing interval is specified in the application. The lips are designed such that grease will purge past the lips and effectively replace old dirty grease with fresh clean grease.

**APPLICATIONS**

T26

OUB2

Tractor Axle.

This applications requires a seal with higher than normal dirt exclusion capabilities.

# HIGH SHAFT RUNOUT

Generally, radial shaft seals are installed in a location near a bearing, where the shaft is well supported and the runout or misalignment of the shaft to the bore is minimal. But at times seals are needed in locations where shaft runout can be excessive.

Our high runout line of seals can extend the runout capability of a standard seal and help to fix some runout issues that come up. The seal cross section incorporates a flexible membrane that helps the main lip follow a shaft with a high runout issue.

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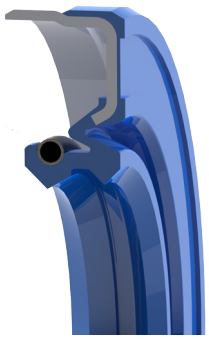
High Shaft Runout.

Sometimes seals are needed in locations where shaft runout can be excessive.



TBCC



# FLUID SPLITTING

Fluid splitting seals utilize a double sealing lip and are used in applications that involve the separation of two fluids.

These types of seals can be found in grease/oil applications. Or most commonly in wet clutch applications where a seal is needed between the engine and transmission/clutch.

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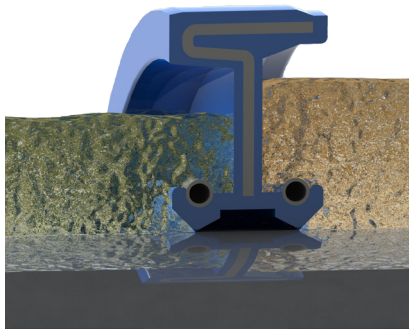
Fluid Splitting Seals.

These types of seals can be found in grease/oil applications.

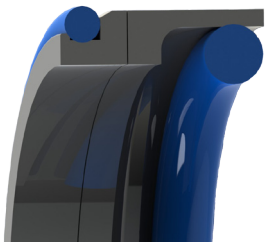


APPLICATIONS

# DUO CONE FACE SEALS

Metal face seals are used in high contamination environments at moderate speeds. The seal consists in two metal rings that spin, one against the other, keeping out contamination in extreme conditions.

Metal faces are loaded with rubber o-rings which help to apply an even load to the face of the seal for the life of the seal, when the o-rings fail they can be replaced and the metal faces can be used again.



Duo Cone Face Seals.

Metal face seals are used in high contamination environments at moderate speeds.

**APPLICATIONS**

# FL SEAL SERIES

The patent pending FL Series Seal™ offers a unique exclusion design that accommodates for production and application seal gap variability.

The FL Series Seal™ installs onto a chamfer with a specifically engineered angle and length. As the seal gap changes during use, the FL seal slides up and down the chamfer, maintaining constant contact with the sealing face.

Typical pivot pin applications utilize a standard pin or wiper seal to keep dirt out of the bearing or bushing. These standard pin seals will seal on the outer diameter of the pin, but as the seal lip wears, leakage can occur. The FL seal self-adjusts as the lip wears, extending the life of the seal itself.

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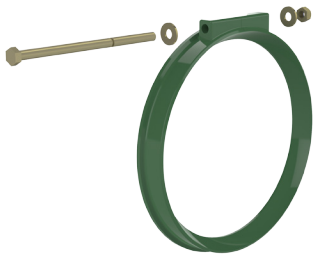
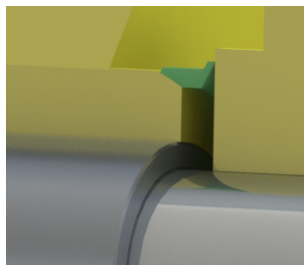
FL Series Seals.

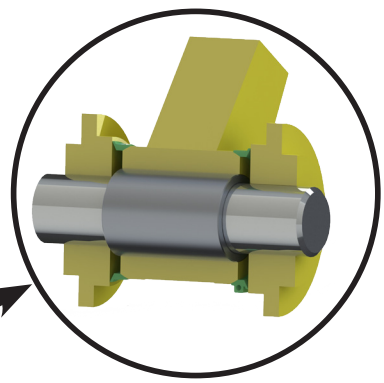
The patent pending FL design uses a seal cross section that rides on a chamfer.





FL Seal Cross Section

## APPLICATIONS

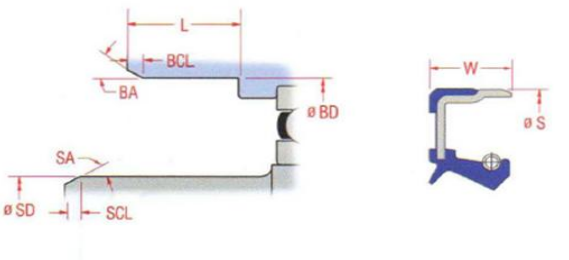


# Request for Quotation

ESP International
5920 Dry Creek Lane NE
Cedar Rapids, IA 52402
Ph: 319-393-4310
Fax: 319-393-5327
www. espint.com

Company: Date:
Contact Name: E-Mail:
Phone: Fax:

| Dim | Description | Value |
|---|---|---|
| SD | Shaft Diameter | |
| BD | Bore Diameter | |
| L | Bore Depth | |
| SA | Shaft Chamfer Angle | |
| SCL | Shaft Chamfer Length | |
| BA | Bore Chamfer Angle | |
| BCL | Bore Chamfer Length | |
| W | Seal Width | |




## Shaft

☐ Horizontal ☐ Vertical
Material:
Hardness:
Surface Finish:
Lead Angle:
Dynamic Runout:
Shaft Offset:

## Shaft Motion

☐ Rotating Normal Max
RPM:
Shaft Speed (ft / min) **

| ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 |
|---|---|---|---|---|
| (0-500) | (500-750) | (750-1750) | (1750-4000) | (4000-up) |

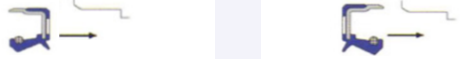
☐ Reciprocating ☐ Oscillating
Stroke Length: Degrees of Arc
Cycle / Min: Normal Max

## Assembly

| | | |
|---|---|---|
| Removal: | ☐ Rare | ☐ Often |
| Space Restrictions: | ☐ Yes | ☐ No |
| Pilot Gap: ** | ☐ Yes | ☐ No |

Shaft Installation Direction

Installation Direction into Bore



## Usage **

☐ Continuous ☐ Intermittent

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cycle Time: | ☐ | 1 | ☐ | 2 | ☐ | 3 | ☐ | 4 | ☐ 5 |
| Down Time: | ☐ | 1 | ☐ | 2 | ☐ | 3 | ☐ | 4 | ☐ 5 |

## Bore

☐ Straight ☐ Counterbore
Material:
Hardness:
Surface Finish:
Chamfer: ☐ Yes ☐ No

## Contamination Level **

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Particle Type:
% of Exposure:
% Submerged:

## Temperature **

☐ F ☐ C
Sump: Underlip: Outside:

## Pressure (PSI) **

| ☐ Standard | ☐ Med/Low | ☐ Med | ☐ High |
|---|---|---|---|
| (0-10) | (10-50) | (500-1000) | (< 1000) |

## Fluid / Lubrication

☐ Grease ☐ Oil
Type:
VI Index:
Sump Fill Level:

## Application Description: