

# MECHANICAL FACE SEALS ROTAVATOR BEARING HOUSING





# HEAVY DUTY FACE SEALS DESIGNED FOR CHALLENGING APPLICATIONS



## 1. Rotavators – History and Significance

With the Increase in demand, Mechanizations of farm for conduction the agricultural operations replacing the traditional methods which involves human and Animal labor has been replaced by Mechanized equipment's. Rotavator is a Tractor driven rotary tillage machine, used to plough the farm by a series of blade which cuts, pulverizes, mixes and level the soil in single pass.

## 2. Application Challenges in Rotavators –

Being operating in very harsh conditions like paddy fields, muddy fields and slurry, moist environment. Rotavators are prone to face major challenges while operations. Few of the major challenges in Rotavator Operation in both dry and Wet conditions in Bearing Housing assemblies are –

- Oil Seal Failure
- Bearing and shaft Damage
- Seal Life

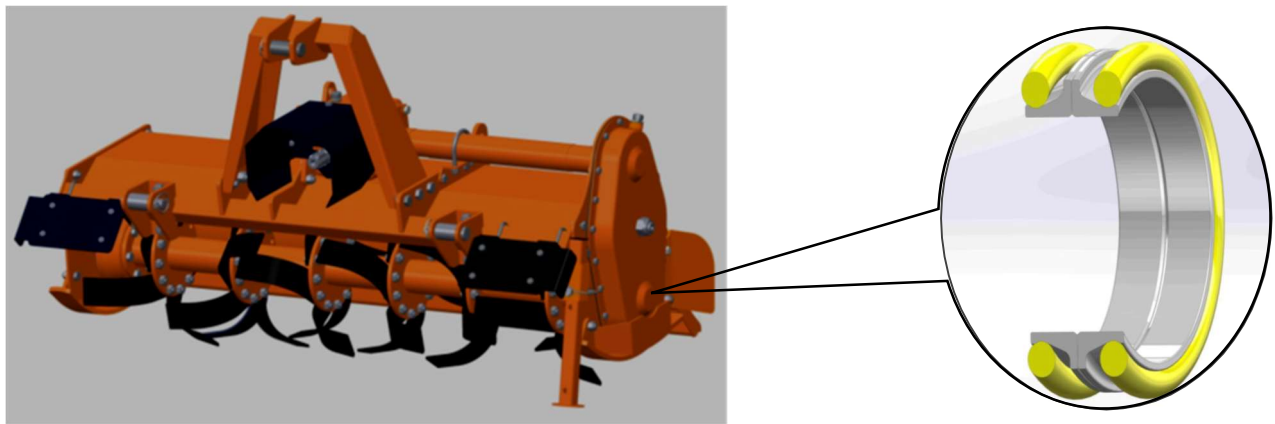


*Some of the common failures in Rotavators*

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## 3.SAP Parts™ Solutions for Rotavators –

The most challenging application for the Rotavators is the hostile working conditions ,specially in the paddy fields . For such a challenging environment sealing arrangement in the bearing housing assemblies of Drive side and non drive side of rotavators needs to be very robust .

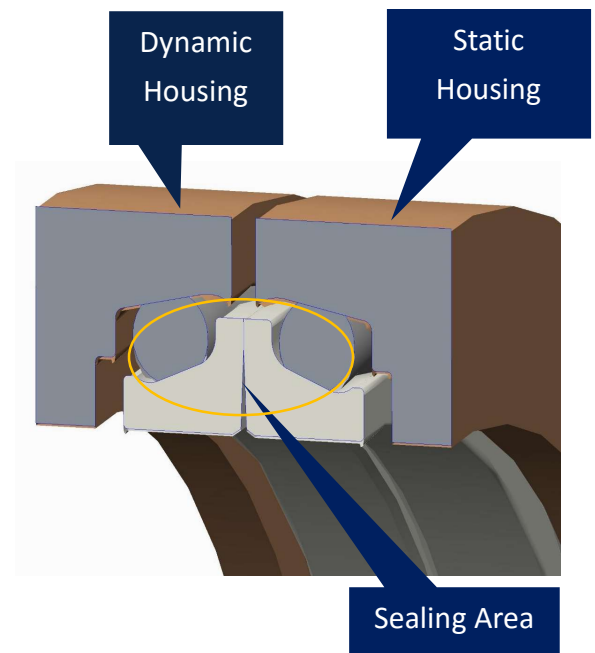


**SAP Parts™** is been manufacturing **Mechanical Face Seals** for Agriculture, Construction, Mining and Industrial applications since 2009. SAP parts with its expertise has already proven their Mechanical face seals in challenging applications like **rotovators**, **Harvesters**, **Tillers** etc.

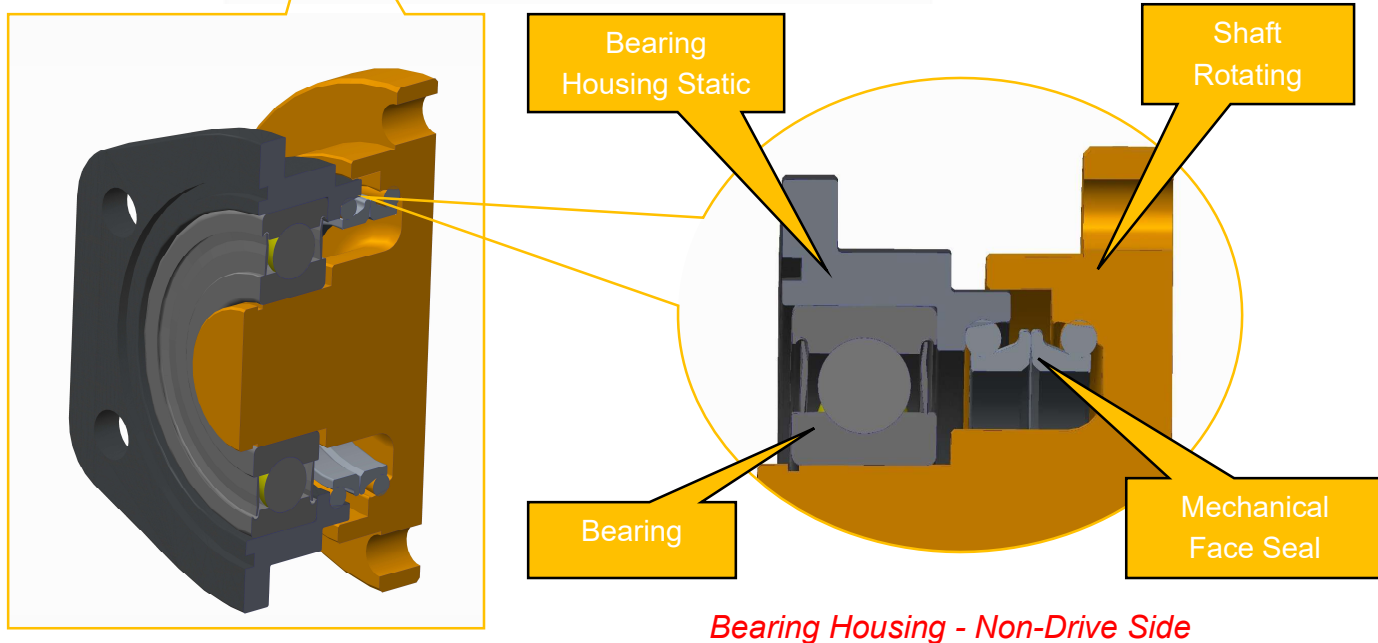
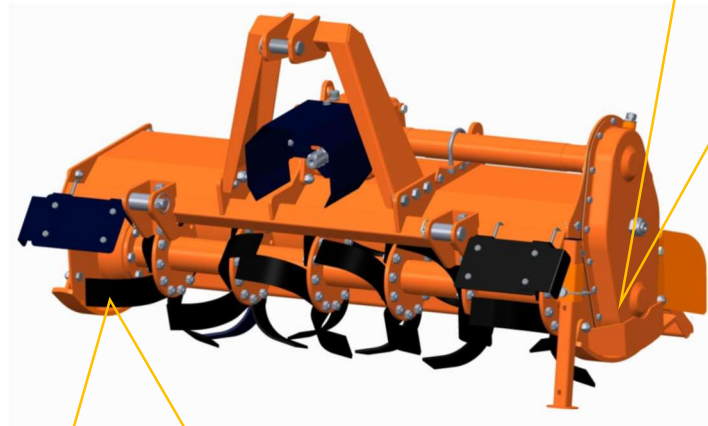
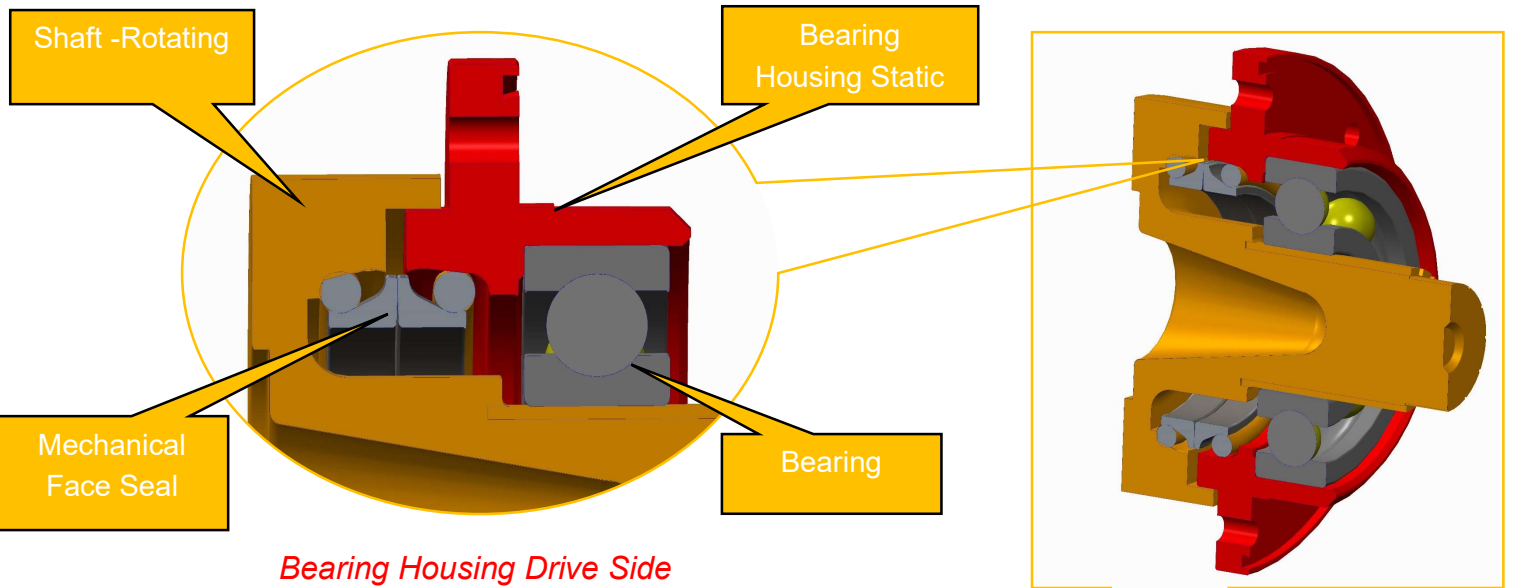
## 4.SAP Parts™ Seals Working Principle –

Mechanical Face Seal consists of Two Metal rings and two O-rings .

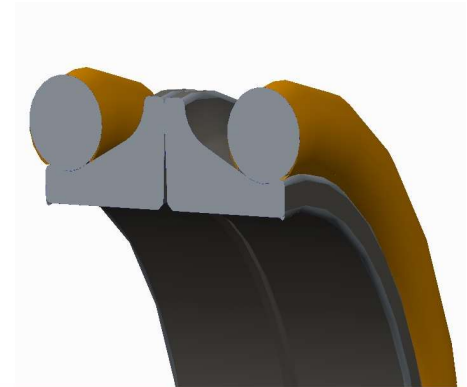
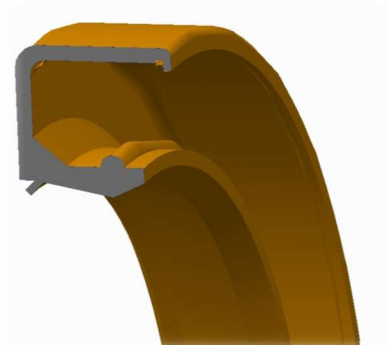
- One pair of Metal seal and O-ring is mounted in the static cavity and the other pair of metal ring and O-ring are mounted on the dynamic cavity.
- There is a relative motion between the metal faces which acts as primary sealing at the metal to metal contact area.
- O-rings are used as secondary sealing Elements providing static sealing on housing and uniform axial pressure on metal rings transmits torque to the metal faces.
- The seal tapered surfaces allow lubrication to the precision lapped metal faces via centrifugal action.



## 5.SAP Parts™ Innovative Sealing Solution –



## 6.SAP Parts™ Innovative Sealing Solution –



	Oil Seal	Mechanical Face Seal
Life Expectancy	400-500 hrs.	2000 + hrs.
Temperature	Constraint	No Constraint
Pressure	Constraint	5 Bar internal
Leakage Integrity	Frequently	Rarely
Operating Conditions	Limitations	No Limitations

## 7.Advantages –

- Mechanical Face seals have higher performance than the conventional seals in high pressure and aggressive environments.
- Higher sealing life than the conventional seals, once assembled we do not have to remove or replace.
- Resistant to contamination and retention to external media sue to special design to fit application and precision lapped surfaces.
- Tested and validated simulating actual working condition at SAP seal Technology center.