



# BulkTite™ – Customer Presentation

Powder and Bulk Solids seal

Paul Bender

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# Introducing the BulkTite™ Seal

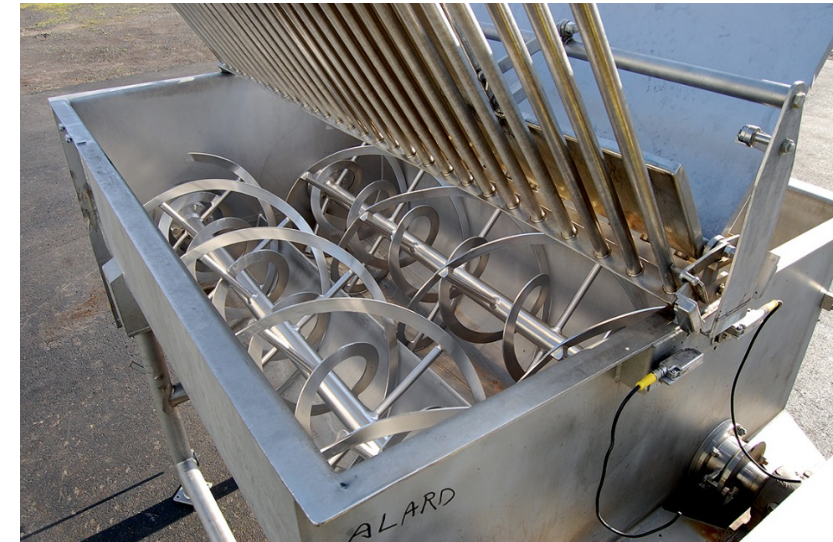
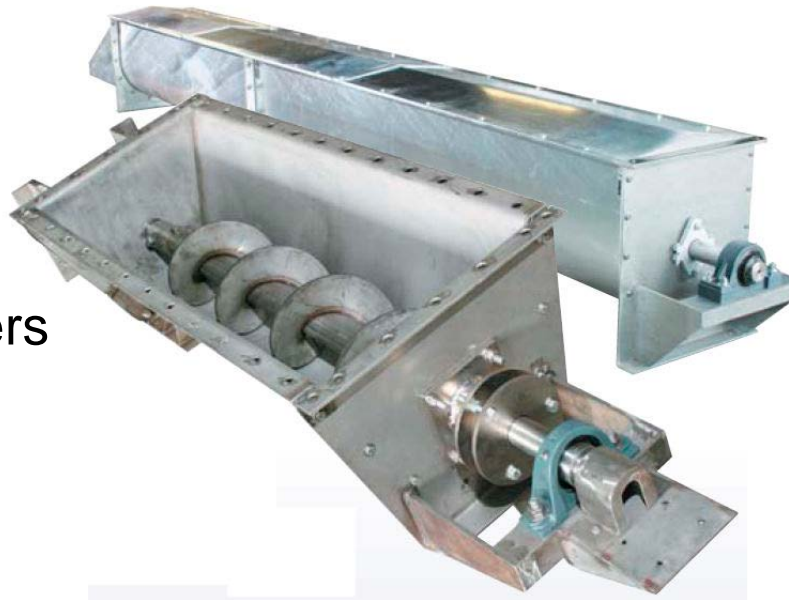
- **BulkTite™** is specifically designed to handle the challenging applications of **Powder and Bulk Solids equipment**
- Dry running, abrasives, misalignment, thermal expansion, radial runout.... **No problem**
- Improve equipment **reliability** and reduce operating expenses





# Where do you need BulkTite seals?

- **Product:** powder (dry) and bulk solids (wet)
- **Industries:** chemical, food processing (corn milling), coal power...
- **Typical equipment:**
  - Screw conveyors
  - Rotary valve (airlock)
  - Delumpers, crushers, grinders
  - Ribbon/paddle mixers
  - Dryers/flakers
  - Clicker grinder
  - Ash conditioners... Many different names, similar equipment
- **Adjacent applications:** blowers, fans, vertical mixers and pumps with low pressure







## Why use BulkTite seals?

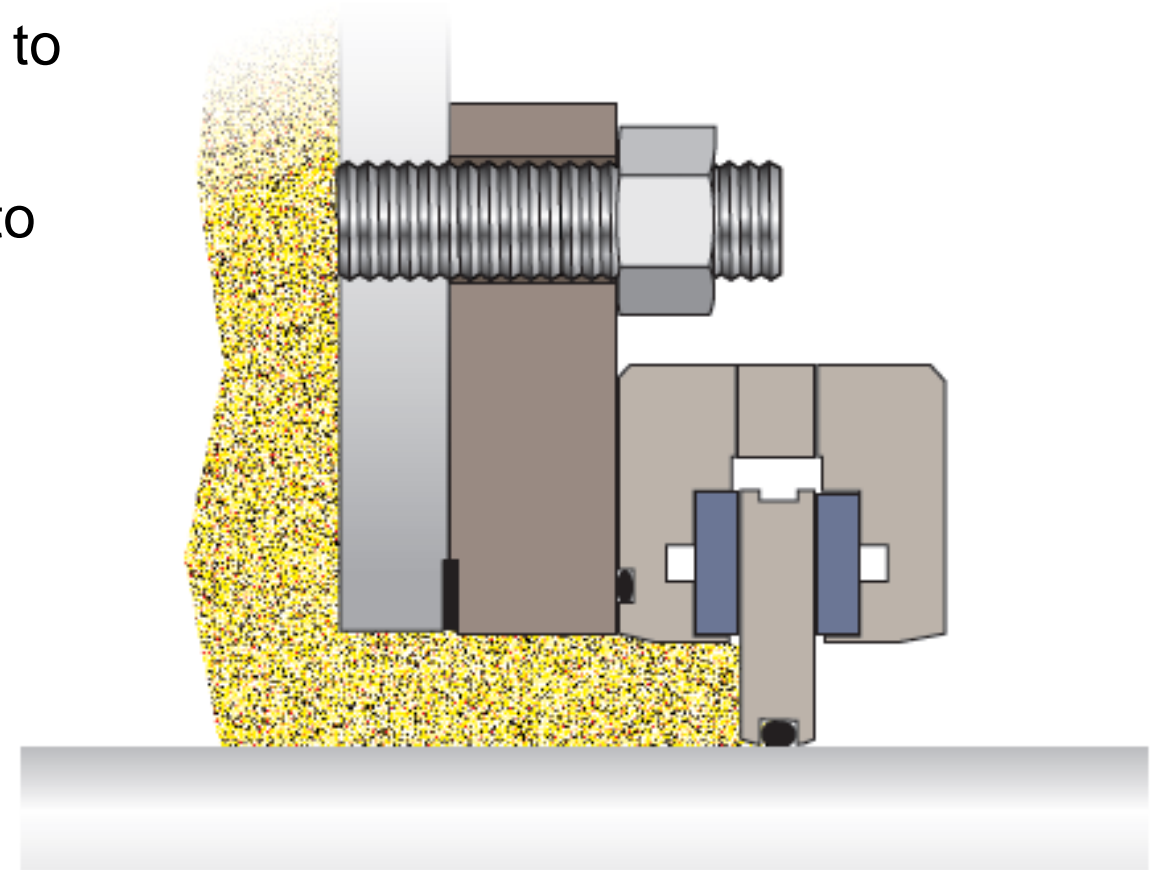
- Powder and Bulk Solids equipment is traditionally sealed with **packing** and **lip seals**
  - **Wear quickly** requiring regular seal maintenance
  - **Damage shaft/sleeves** increasing repair costs
  - Have **high product leakage** creating housekeeping and health/safety concerns





## The BulkTite seal advantage

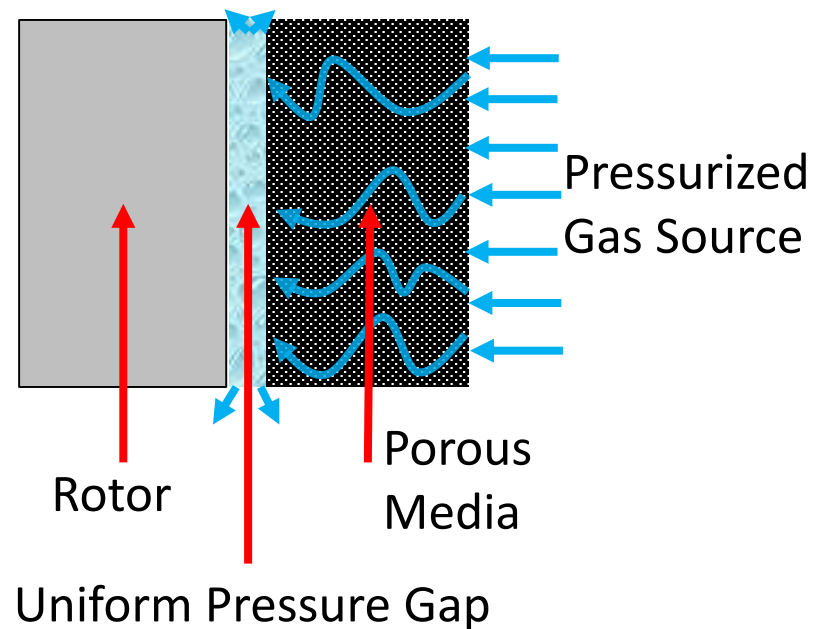
- Provides **dry running**, non-contacting sealing to **significantly reduce** maintenance costs
- **Doesn't damage** equipment, which can lead to sizeable repair expense
- Accepts more axial, radial and angular **misalignment** to increase seal life
- **Mounts easily** to reduce installation time





## BulkTite - porous media advantage

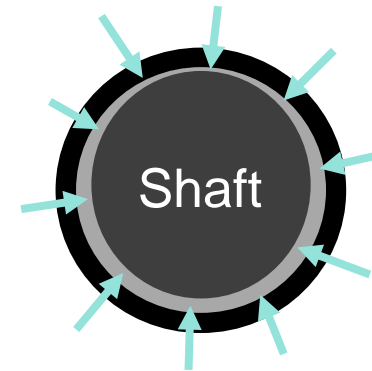
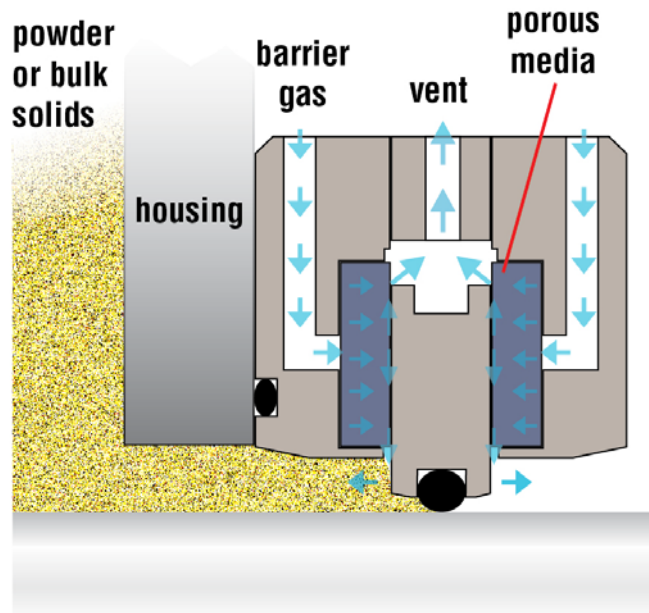
- BulkTite uses porous media from air bearing technology
- Allows gas to be applied through the sealing surface directly where it is needed
- Creates a uniform gas film to support the rotor while sealing product





## BulkTite - porous media advantage

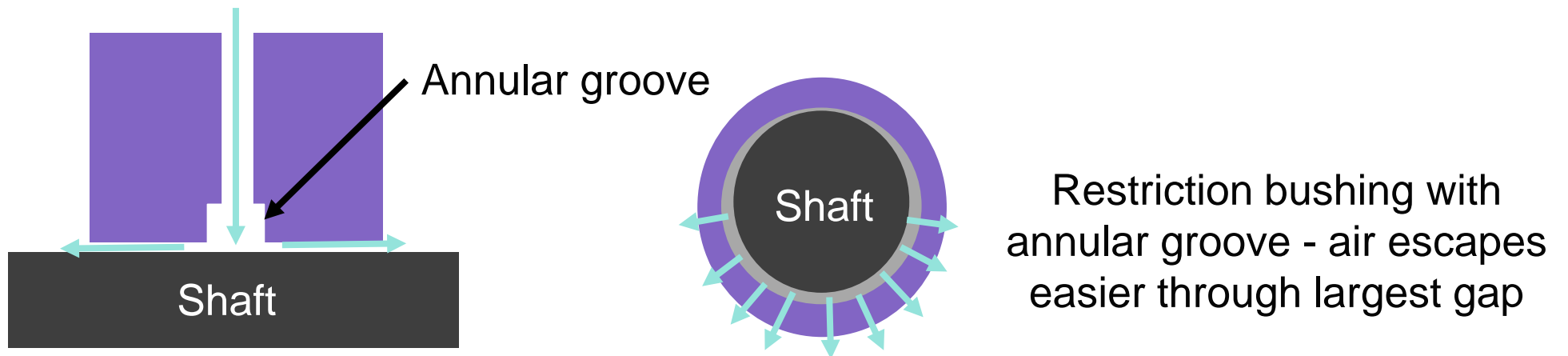
- Unique technology significantly lowers gas consumption
- Provides superior non-contacting sealing consistently 360° around the shaft



Porous media provides  
consistent gas flow and sealing  
around the shaft

## Other air seals

- Use restriction bushings and annular grooves
- Gas flow can't correct for misalignment and self-center on the shaft
- Gas escapes easier through areas with larger clearance, creating uneven sealing
- Larger clearances require larger gas flow (flow is proportional to  $gap^3$ )
- Once powder enters the gap, the gas flow is disturbed and seals typically leak continuously

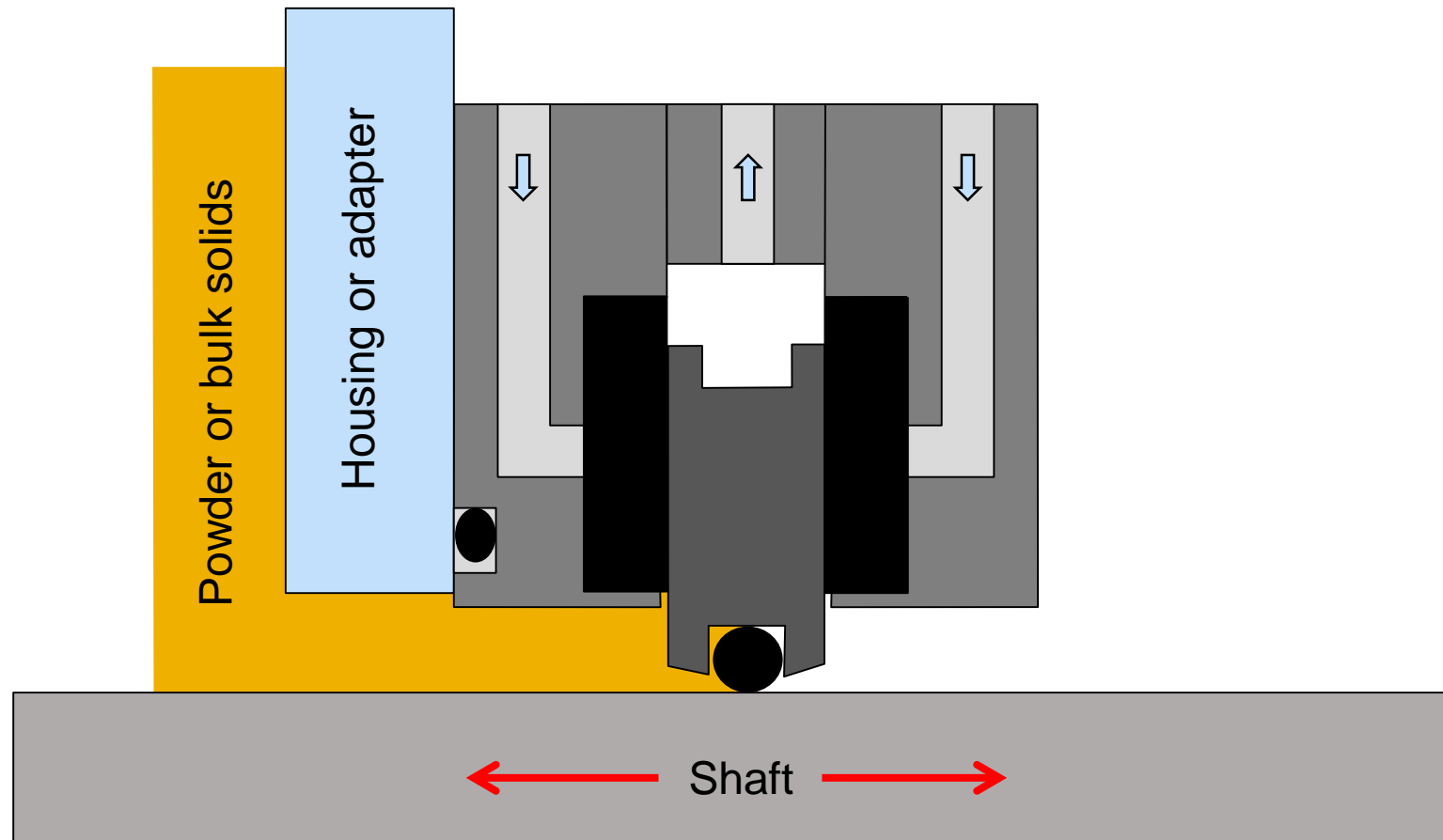






## BulkTite features and benefits

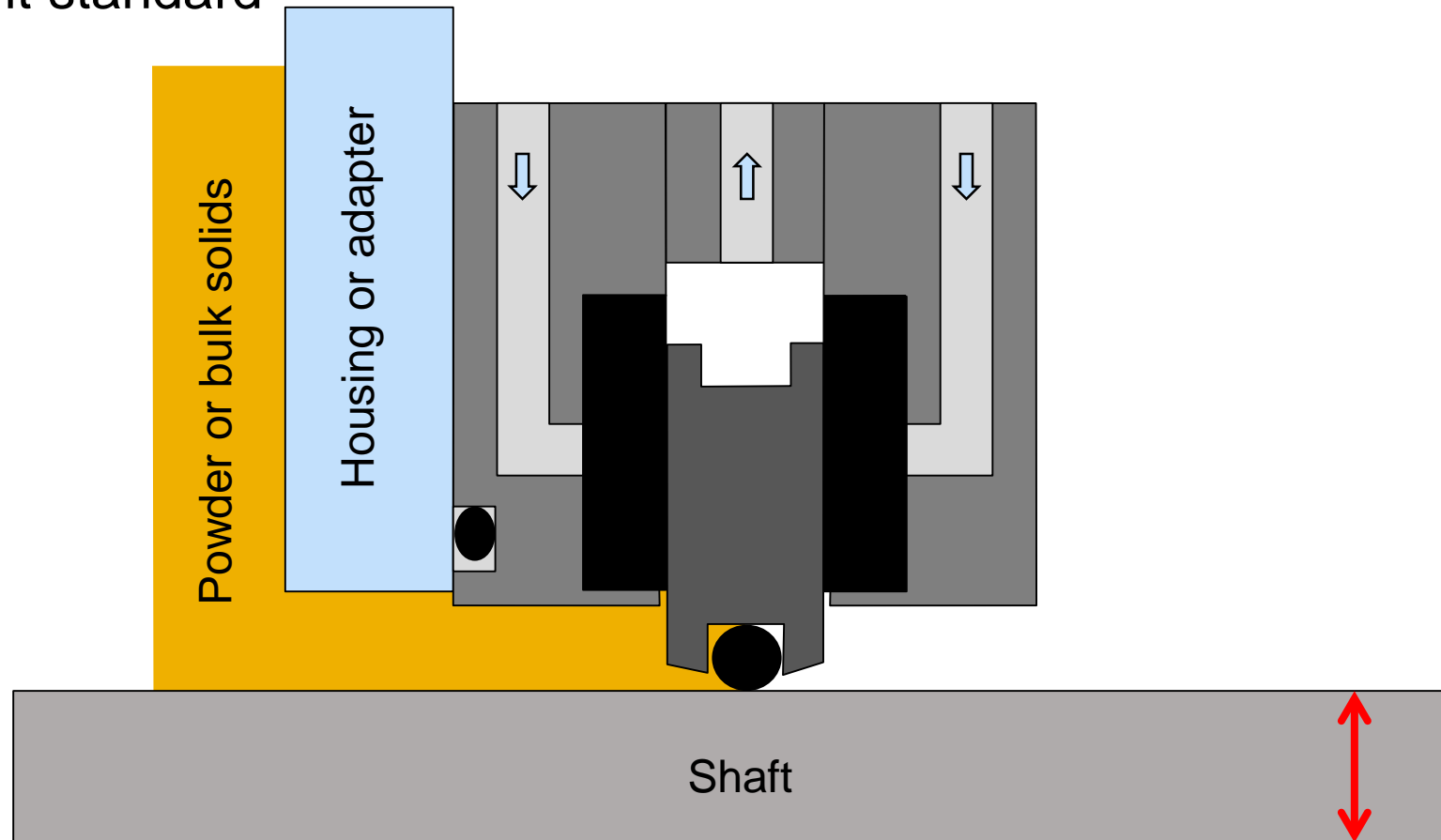
- Shaft axial movement passes through the drive O-ring with minimal wear





## BulkTite features and benefits

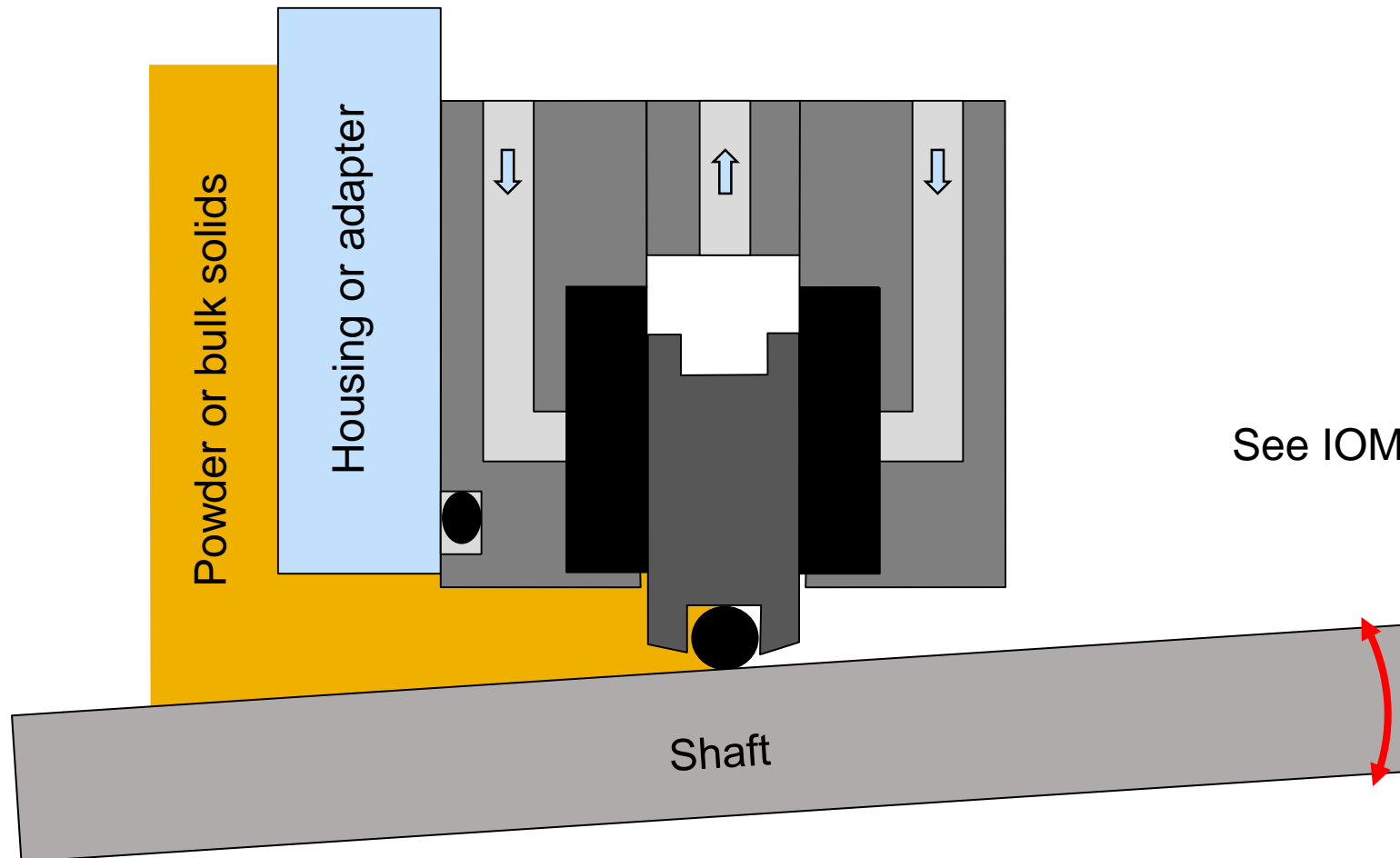
- Rotor floats on a gas film and accommodates up to 0.125 inch (3.1 mm) radial movement standard





## BulkTite features and benefits

- Allows up to 2° static shaft angular misalignment

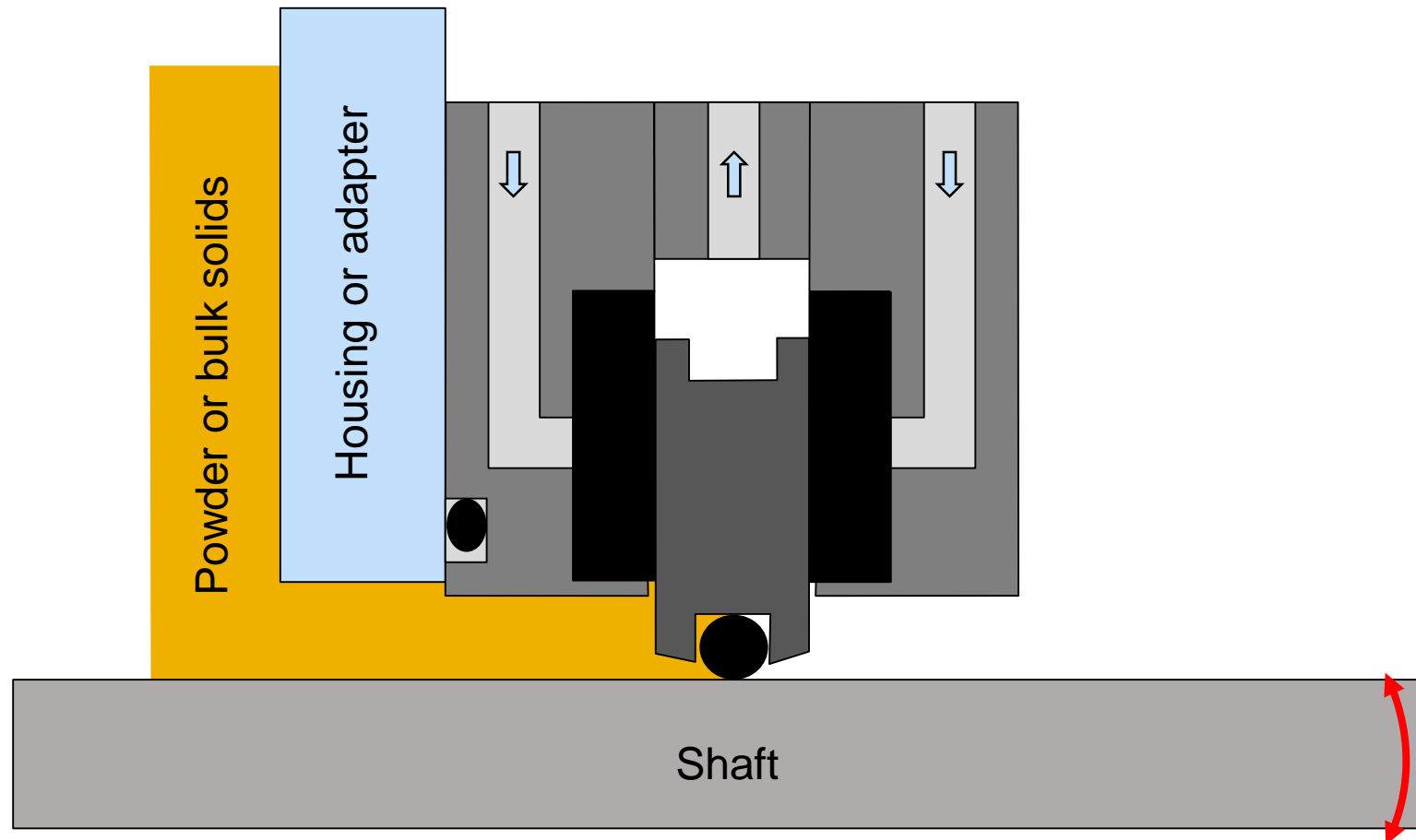


See IOM for measurement details



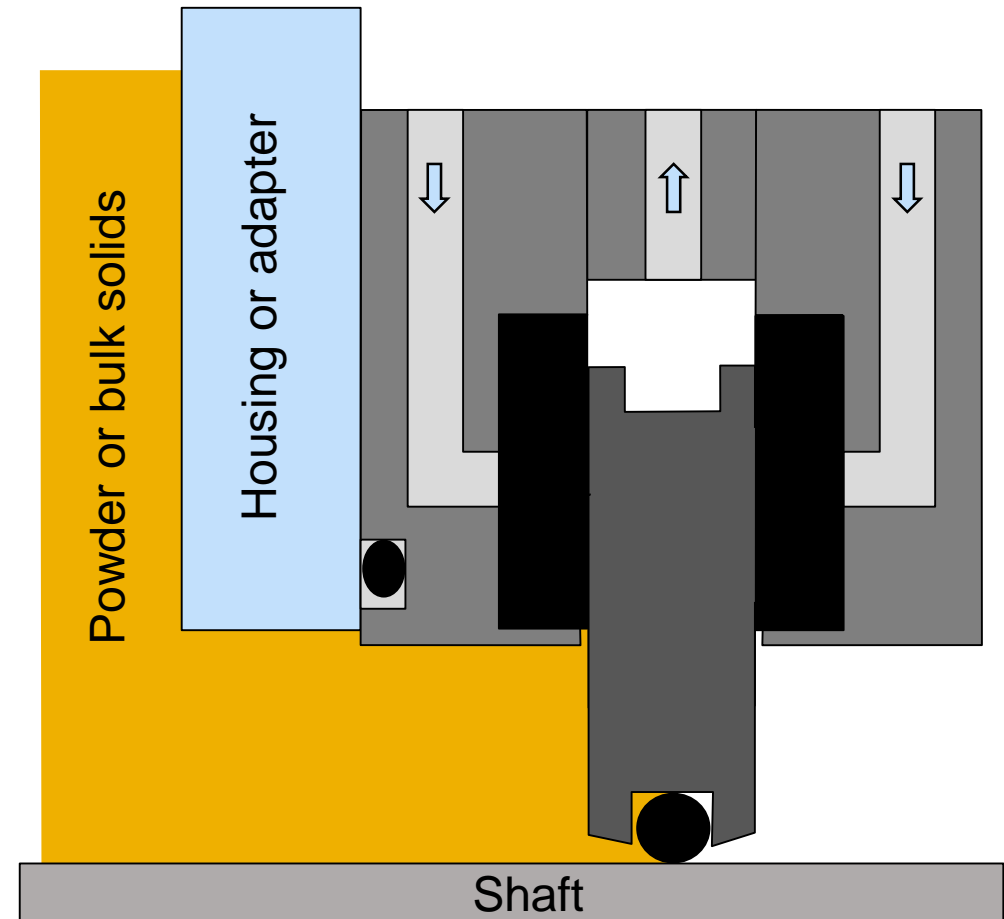
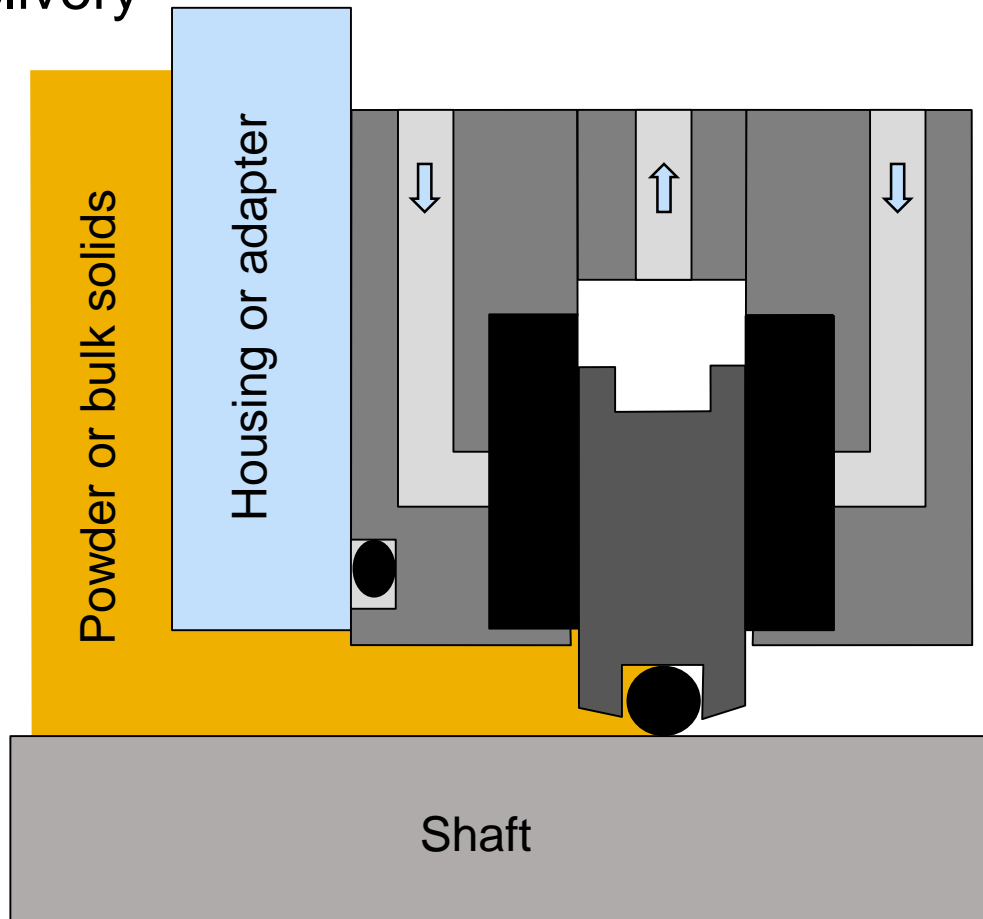
## BulkTite features and benefits

- Allows up to 0.5° dynamic shaft angular misalignment



# BulkTite features and benefits

- Rotor can be adjusted to adapt 6 standard sizes to specific shaft dimensions for quick delivery

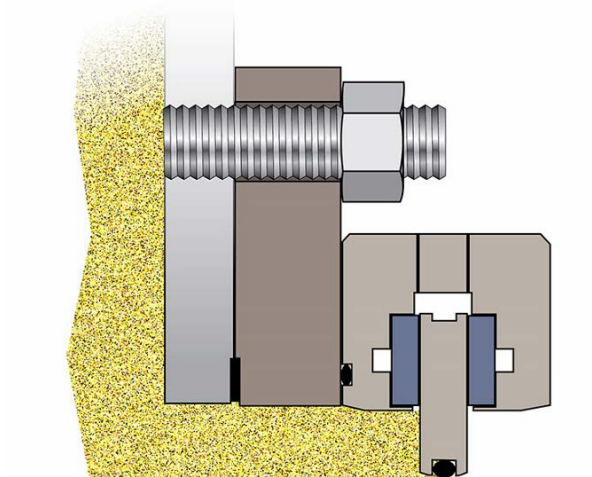




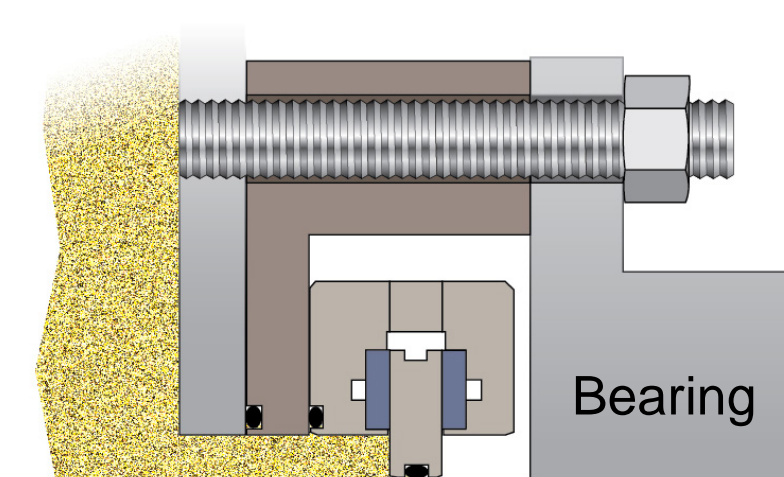


# BulkTite features and benefits

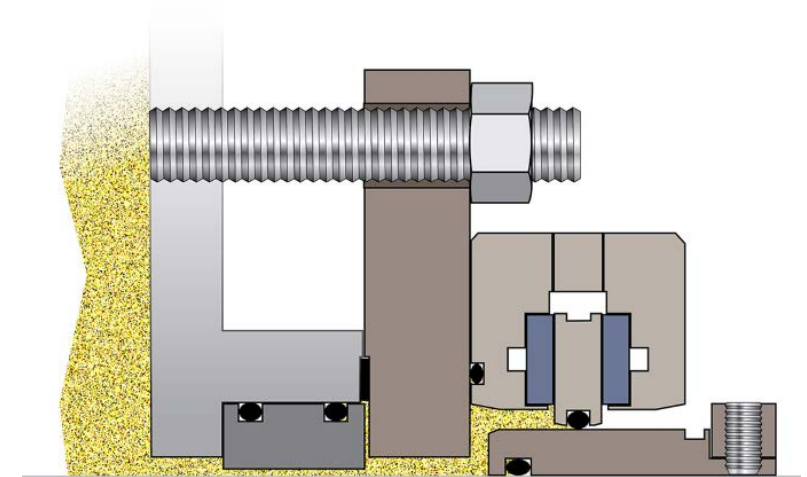
- Multiple mounting options to minimize equipment modification



Standard installation  
with adapter



Installation with  
flange bearing adapter



Stuffing box retrofit with  
optional sleeve and bushing



## BulkTite materials and operating window

- Wetted metal: 316 stainless steel
- Porous media: Proprietary Carbon
- O-rings: Fluoroelastomer
- Shaft diameter: 0.625 – 6.000 inch (16-150 mm)
- Maximum temperature: 200°F (90°C)
- Maximum product pressure: 50 psi (3.4 bar)
- Gas options: Plant air, instrument air, nitrogen
- Gas connections: 1/8 inch NPT (customer)
- Typical air consumption: 0.17- 0.47 SCFM (4.8-13.3 LPM)





# Key BulkTite application information

- Equipment Details:

- Type – screw conveyor, rotary valve, delumper, dryer...
- Standard dimensions – diameters, first obstruction, bolting
- Housing mounting style and shaft alignment levels
- Vented to atmosphere
- Temperature of mounting surface & product

- Process Details:

- Product description – size, hardness, sharpness, density, stickiness, reactivity...
- Note: gas will contact product – filter & dryer recommended

- Use BulkTite application data sheet – FTA214

The form is titled "BulkTite™ dimensional information sheet" and includes the Flowserve logo. It contains a central diagram of a BulkTite seal assembly with various dimensions labeled: product height, depth, maximum protrusion from housing face, inner diameter, shaft diameter, and bore diameter. To the right of the diagram is a note: "To request a quote, fill out the information below and forward it to your local Flowserve representative. To find your local representative go to <http://www.flowserve.com/fls/Secondary/Sales-Locator>". Below the diagram are two circular diagrams showing "4 bolt mount" and "2 bolt mount" configurations with dimensions like DBC, chord length, and flange OD. The form includes several sections for user input: "Equipment vented to atmosphere" (yes/no), "Gas allowed into product" (air/nitrogen/none), "Equipment" (screw conveyor/rotary valve/mixer/other), "Current seal type" (lip/packing/other), "Shaft position" (horizontal/vertical up/vertical down), "Product to be sealed", "Product density", "Speed" (rpm), "Temperature" (C/F minimum/maximum), "Misalignment" (radial runout/axial runout/shaft perpendicularity), "Stud size", "O-ring preference" (Viton/other), "Additional information", "Customer", "Equipment label", "Information supplied by", and "Date". The form number "FTA214eng REV 12/15" is at the bottom left.



# Summary

- Use BulkTite to increase the life and reliability of your powder and bulk solids equipment while reducing product leakage and operating expenses
- Contact your local Flowserve representative for more information

