

## New Cost Effective SUSpension ceramic coatings with SUPERior WEAR and insulating properties (E!9756)

Start Date: December, 2016  
Duration: 30 months

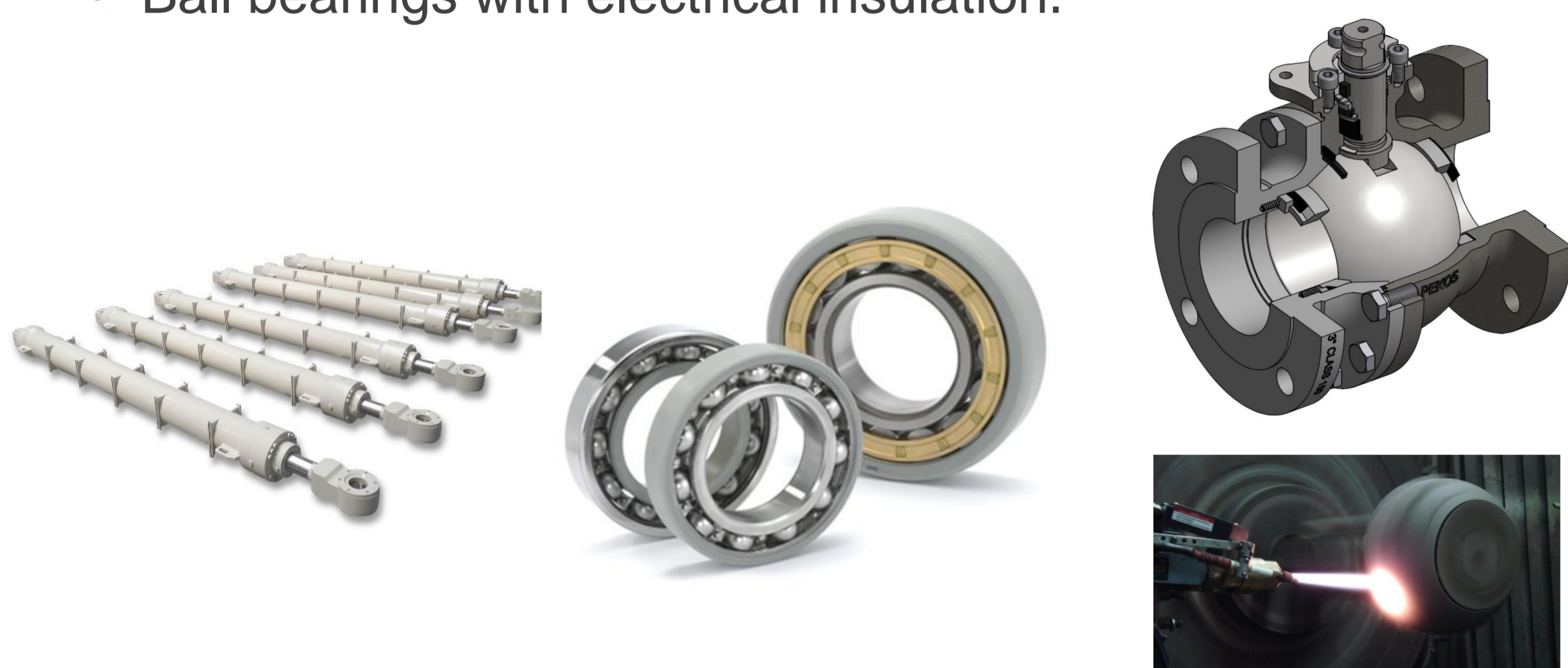
Talleres Mecánicos Comas S.L.U C/ Avinguda de l'Estació, 17300 Blanes (Girona), Spain  
| Phone: +34 972 33 06 00 | \* E-mail: tecnic@tmcomas.com

### What do we want to do?

The project is based on the development of **oxide coatings** with superior wear/corrosion resistance and insulation properties using a cost-effective and environmentally friendly production process based on **Suspension Thermal Spraying (STS)**.

The project aims to do the first implementation of STS in SME job shops, demonstrating its advantages in selected components:

- Cylinders for hydroelectric applications
- Off-shore piston rods
- Industrial valves
- Pump sealing seats
- Ball bearings with electrical insulation.



### STS Coatings

The ceramic coatings obtained using Suspension Thermal Spray (STS) offer interesting **advantages** in comparison with traditional thermal sprayed coatings:

- Smoother surface ( $R_a \approx 1 \mu\text{m}$  instead of  $R_a \approx 10\mu\text{m}$ )
- High wear protection due to denser, nano-crystalline microstructure
- Improved mechanical performance (higher hardness & toughness)
- Improved wear-corrosion resistance
- High electrical insulation
- Cost efficient due to less expensive post-processing (mechanical finishing)
- Environmentally friendly processing



### Partners

STS  
HARDWARE  
DEVELOPER



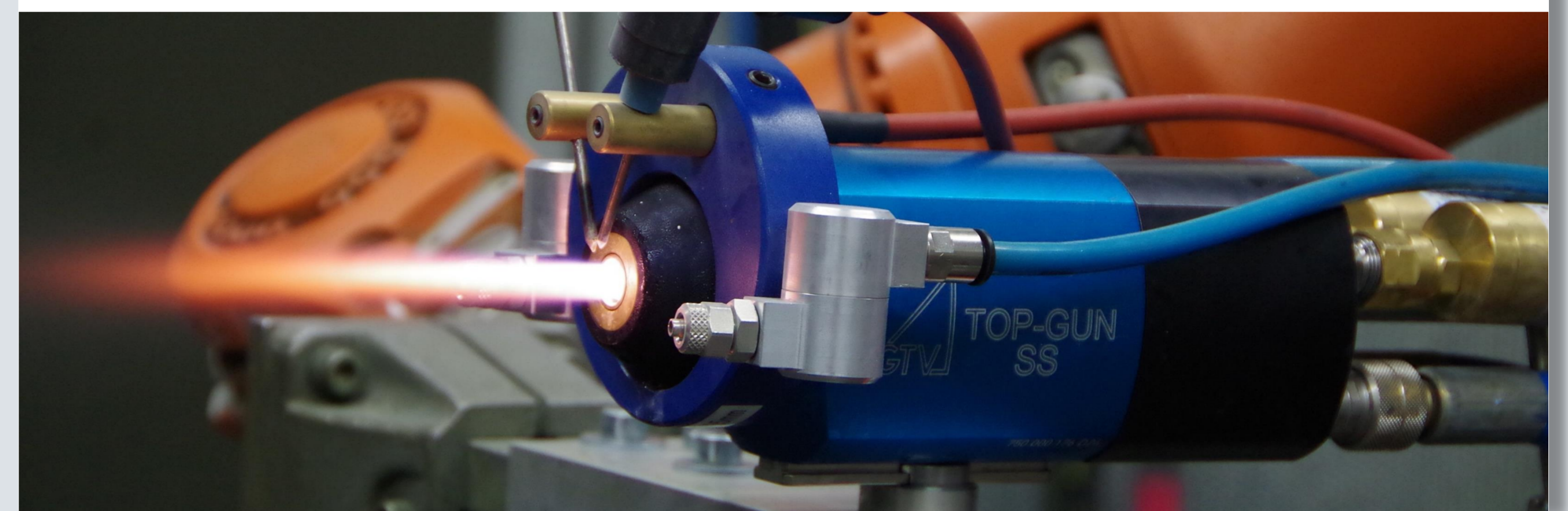
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COATING PRODUCERS

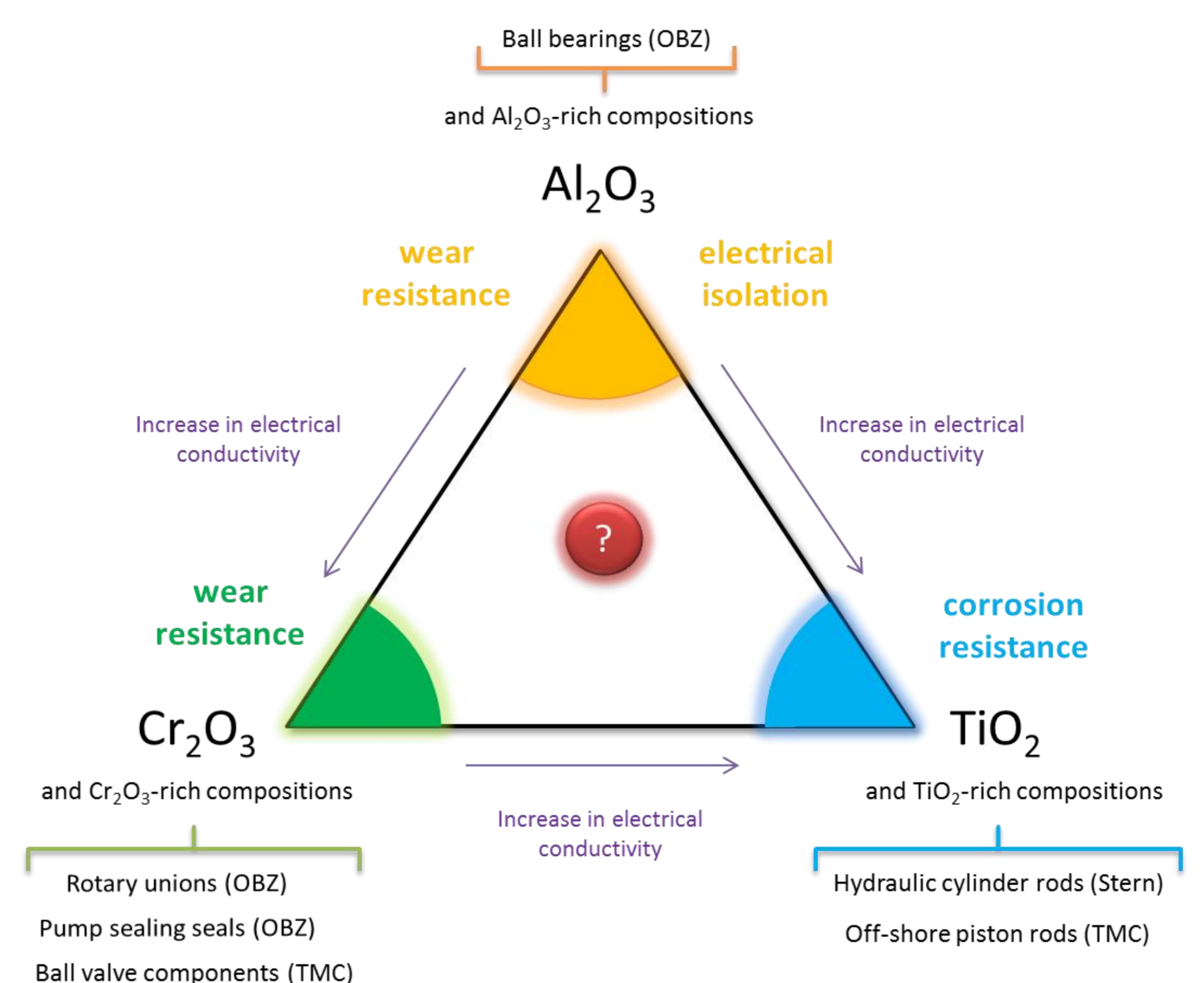


RESEARCH CENTERS



### Strategy

1. Development of special hardware to spray suspensions
2. Implementation of the suspension hardware in the current spray booths of the SMEs job coaters
3. Production of suspension feedstock based on ternary oxide ceramic composition ( $\text{Al}_2\text{O}_3\text{-TiO}_2\text{-Cr}_2\text{O}_3$ )



4. Development and characterization of the new STS coatings tailored for the selected market segments:
  - At laboratory scale
  - Optimization and up-scaling
5. Validation of the industrial STS coated prototypes

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### Partners

STS hardware developer



End user



coating producers



Research centers

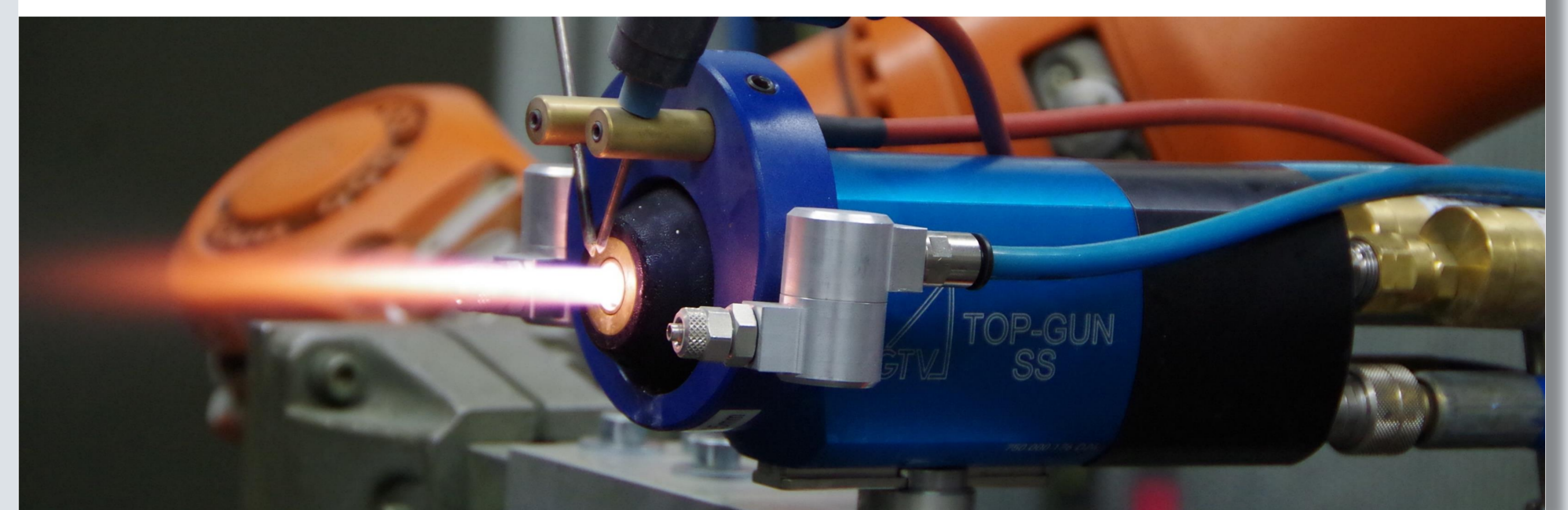


Fraunhofer



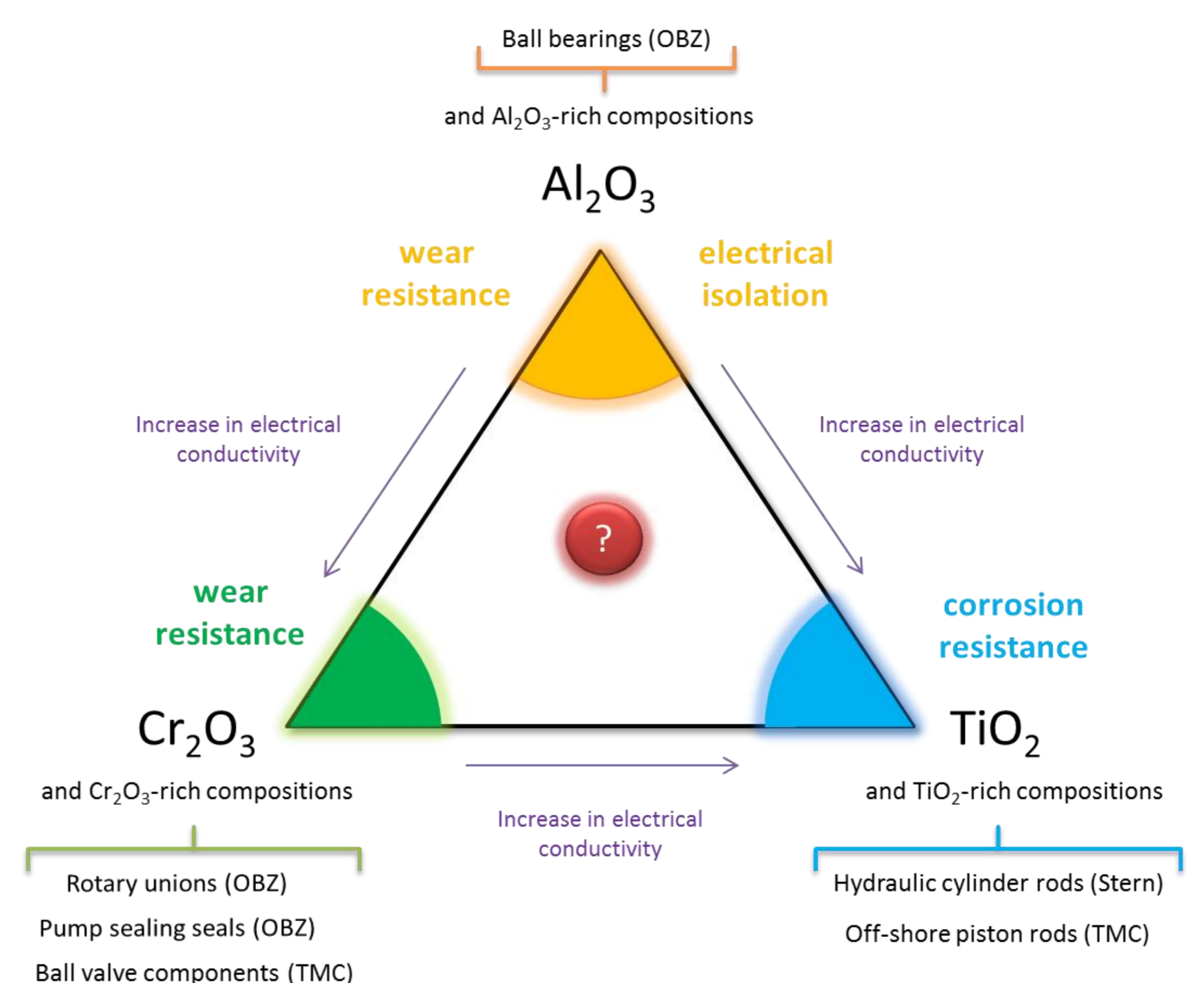
TEKNIKER

Research Alliance



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