Science. Applied to Life.™

Sales Sheet

Engineered for the earth's extremes.

3M™ Hydrodynamic Thrust Bearings

Temperature resistant, high load capacity bearings for pumps and motors.

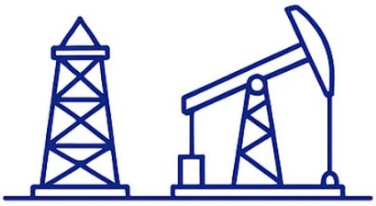


Extreme heat, high pressure, abrasive or corrosive substances, and other harsh conditions are typical in downhole environments. 3M™ Hydrodynamic Thrust Bearings can help operators improve the lifespan of their pumps, potentially reducing maintenance and downtime costs. 3M hydrodynamic thrust bearings provide high load capacity and can help you increase your equipment service life in some of the most challenging conditions – including high temperature, misalignment, and high impact environments.

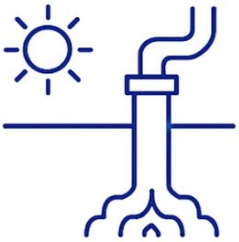
3M thrust bearings are made with 3M™ Silicon Carbide, a high-strength ceramic that delivers robust tribological performance under high loads and pressure. Its low-distortion thermal shock resistance and high-temperature capability support deeper, reliable ESP operation and longer component life. Exceptional abrasion resistance helps maintain efficiency in aggressive media (minerals, corrosive chemicals) and helps operators enable process-fluid lubrication where oil is restricted.



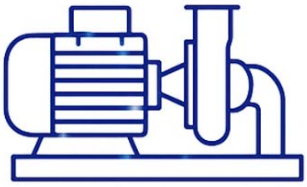
Electrical submersible pumps (ESPs)



Oil & gas production



Geothermal wells



Pumping & energy equipment

Features	Applications	Advantages
• Silicon carbide pads are a high-strength ceramic offering with excellent abrasion and corrosion resistance, strong thermal shock resistance, and high-temperature capability above 650°F • Segmented tilt-pad mechanism with retainer pivot to stabilize rotation and optimize contact under changing loads/speeds • 3M spring-mount axial flex for even thrust-load distribution; helps control imbalance, misalignment, and vibration • Precision clearances and surface finishes with integrated oil grooves for strong hydrodynamic lift and a thin lubricating film • Operates with oil, water, process fluids, or contaminated lubricants; helps support bidirectional and high-speed operation • Scalable high load capacity; designed to handle extreme downthrust (up to 75,000 lbs.)	• Geothermal ESPs in deep wells with extreme heat, pressure, and abrasive/corrosive media • Process-lubricated systems where environmental regulations restrict oil • Oil-lubricated ESPs needing improved heat transfer to help protect seal chambers and motor protectors • Operations exposed to minerals, corrosive chemicals, or contaminated lubricants • ESPs requiring bidirectional/ high-speed mode to help mitigate segmented flow from steam/gas • Environments with fluctuating downhole pressure and motor–wellbore differentials	• Helps extend service life; field-proven reliability for ESP applications • Reduced friction and power loss via strong hydrodynamic lift • Enhanced thermal management and shock absorption for heat/pressure swings • Improved shaft stability, alignment, and vibration control • Greater design and operational flexibility: versatile lubrication, bidirectional/high-speed capability, scalable thrust capacity • Potentially lower maintenance and downtime; helps enable access to deeper geothermal reservoirs

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3M Advanced Materials and Transportation

3M Center
St. Paul, MN 55144 USA

Phone 1-800-367-8905
Web www.3M.com/admd

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