TFL BEARINGS

SUPERIOR PROTECTION AGAINST ELECTRICAL EROSION

Premium Electrically Insulated Bearings & Custom Coating Services

ADVANCED TECHNOLOGY
Plasma Spraying Coating

ISO STANDARD
100% Interchangeable

CUSTOMIZATION
Zero Dimensional Change

www.insulated-bearings.com

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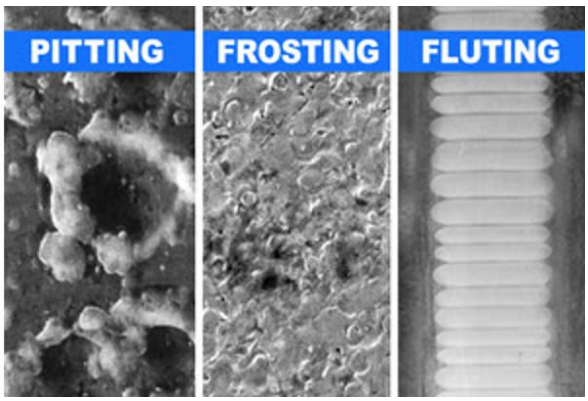
TFL BEARINGS

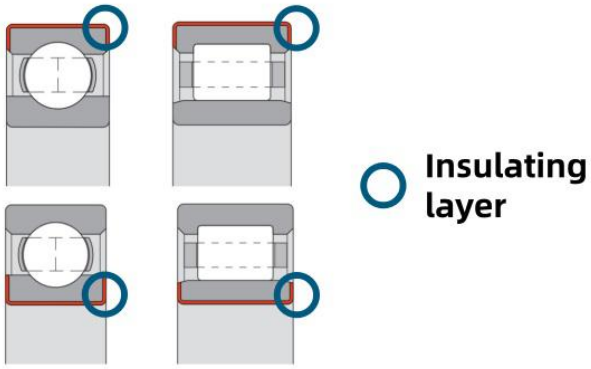
THE ISSUE

In variable frequency motors and generators, stray currents (shaft voltages) are a silent killer. When this current discharges through the bearing, it causes micro-arcing on the contact surfaces.

The Consequence: This leads to "fluting" or "washboarding" patterns, increased noise, vibration, and premature bearing failure.



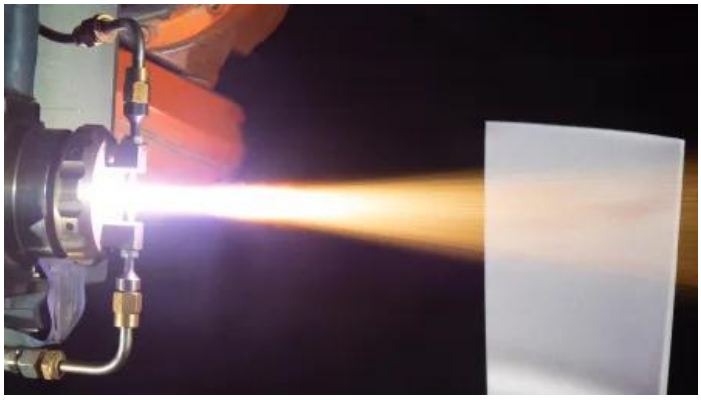
THE TFL SOLUTION

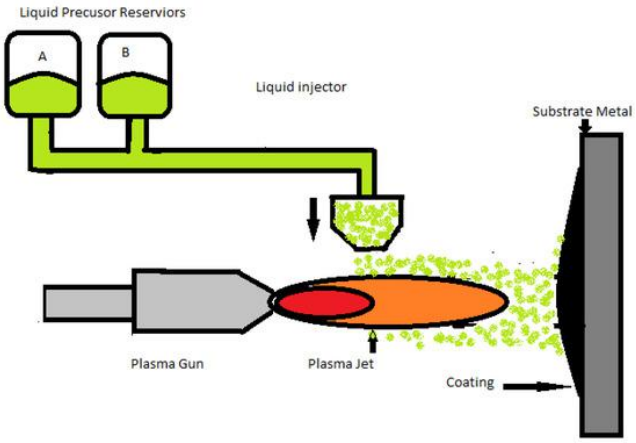


TFL Insulated Bearings effectively block stray currents. We apply a specialized Aluminum Oxide ceramic coating to the outer or inner ring using advanced plasma spraying technology.

- **High Insulation:** Breakdown voltage > 1000VDC or > 3000VDC.
- **Extended Life:** Significantly increases motor uptime.
- **Cost-Effective:** Reduces maintenance costs.

CORE TECHNOLOGY





1. PLASMA SPRAYING PROCESS

The coating is applied using high-velocity plasma spraying, creating an exceptionally strong bond with the substrate. It is resistant to thermal shock and mechanical stress.

2. ADVANCED SEALING

We utilize a unique resin sealing process to close the pores of the ceramic layer. This ensures consistent insulation resistance (> 50MΩ) even in humid environments.

KEY ADVANTAGES

- **Direct Interchangeability:** Identical boundary dimensions to standard bearings. No housing modifications needed.
- **Heat Dissipation:** The thin ceramic layer conducts heat efficiently.
- **Compliance:** RoHS and REACH compliant.
- **Range:** Available for Deep Groove Ball, Cylindrical, Tapered, and Spherical Roller Bearings.

PRODUCT RANGE

We offer a comprehensive range of insulated bearings for diverse industrial applications.

DEEP GROOVE BALL BEARINGS

The standard solution for electric motors (Sizes 62xx, 63xx). High-speed capability.

CYLINDRICAL ROLLER BEARINGS

Designed for heavy radial loads and traction motors (NU, NJ, NUP). Robust coating.

TAPERED ROLLER BEARINGS

Ideal for gearboxes and wheel hubs involving combined radial and axial loads.

SPHERICAL ROLLER BEARINGS

Self-aligning bearings for wind turbines and heavy machinery.

CUSTOMIZATION & COATING

"Coat Your Bearings" Service

We can upgrade standard bearings (including SKF, FAG, NSK provided by customers) into high-performance insulated bearings.

ZERO DIMENSIONAL CHANGE

Concerned about fitment? Don't be.

After plasma spraying, every bearing undergoes **precision grinding**. We restore the bearing to its exact original ISO tolerances. Guaranteed to fit just like a standard bearing.

OUR PROCESS

1. **Inspection** — Check incoming
2. **Spraying** — Plasma coating
3. **Grinding** — Precision finish
4. **Testing** — 100% Insul. test

Request Custom Quote

ABOUT TFL

As a pioneer in insulated bearings, TFL Bearings has developed proprietary technology to break the monopoly of foreign high-end solutions. Located in **Liaocheng**, the heart of China's bearing industry, our modern facility integrates design, manufacturing, coating, and testing.

20+	95%	ISO
Years Experience	Repurchase Rate	9001:2015 Certified

MANUFACTURING & QUALITY

We control every step of the process. From turning and grinding to the final coating, our dedicated engineers ensure precision. We employ advanced inspection equipment to ensure every product meets international standards for dimensions and insulation performance.

TABLE 1: INSULATED DEEP GROOVE BALL BEARINGS

Note: Parameters include breakdown voltage and insulation resistance.

Model	Dimensions (mm)	Load (kN)	Speed	Breakdown Voltage	Insul. Res.	Coating Loc.
6020/C3VL2071	100 x 150 x 24	64.0 / 54.0	6100	1000~3000 V	>50 MΩ	Inner Ring
6220/C3VL0241	100 x 180 x 34	127.0 / 93.0	7500	1000~3000 V	>50 MΩ	Outer Ring
6320M/C3VL0241	105 x 225 x 49	195.0 / 153.0	6300	1000~3000 V	>50 MΩ	Inner Ring
6022/C3VL0241	120 x 180 x 28	88.4 / 80.0	7500	1000~3000 V	>50 MΩ	Outer Ring
6224/C3VL0241	150 x 225 x 35	131.0 / 124.0	3950	1000~3000 V	>50 MΩ	Inner Ring
6230/C3VL2071	160 x 290 x 48	212.0 / 203.0	4150	1000~3000 V	>50 MΩ	Inner Ring
6332M/C3VL0241	160 x 340 x 68	276.0 / 285.0	4000	1000~3000 V	>50 MΩ	Outer Ring
6234M/C3VL0241	170 x 310 x 52	225.0 / 224.0	3800	1000~3000 V	>50 MΩ	Outer Ring
6334M/C3VL2071	170 x 360 x 72	325.0 / 365.0	3200	1000~3000 V	>50 MΩ	Inner Ring
6236M/C3VL0241	180 x 320 x 52	240.0 / 244.0	3650	1000~3000 V	>50 MΩ	Outer Ring
6336M/C3VL2071	180 x 380 x 75	355.0 / 405.0	3000	1000~3000 V	>50 MΩ	Inner Ring
6238M/C3VL2071	190 x 340 x 55	255.0 / 280.0	3350	1000~3000 V	>50 MΩ	Inner Ring
6338M/C3VL0241	190 x 400 x 78	380.0 / 455.0	2850	1000~3000 V	>50 MΩ	Outer Ring
6044M/C3VL0241	220 x 340 x 56	247.0 / 290.0	3300	1000~3000 V	>50 MΩ	Outer Ring
6344M/C3VL0241	220 x 460 x 88	440.0 / 560.0	2460	1000~3000 V	>50 MΩ	Outer Ring

ELECTRICALLY INSULATED BEARINGS

TABLE 2: INSULATED CYLINDRICAL ROLLER BEARINGS

Model	Dimensions (mm)	Load (kN)	Speed	Breakdown Voltage	Insul. Res.	Coating Loc.
NU 1010 ECP	50 x 80 x 16	47.3 / 57.0	9500	>1000 VDC	>50 MΩ	Outer Ring
NU 1012 ECP	60 x 95 x 18	58.3 / 73.5	8000	>1000 VDC	>50 MΩ	Outer Ring
NU 1014 ECM	70 x 110 x 20	70.4 / 85.0	7000	>1000 VDC	>50 MΩ	Outer Ring
NU 1016 ECM	80 x 125 x 22	99.0 / 127.0	6000	>1000 VDC	>50 MΩ	Outer Ring
NU 1018 M	90 x 140 x 24	85.8 / 110.0	5600	>1000 VDC	>50 MΩ	Outer Ring
NU 1020 M	100 x 150 x 24	89.7 / 122.0	5000	>1000 VDC	>50 MΩ	Outer Ring
NU 1022 M	110 x 170 x 28	130.0 / 173.0	4500	>1000 VDC	>50 MΩ	Outer Ring
NU 1024 M	120 x 180 x 28	138.0 / 190.0	4000	>1000 VDC	>50 MΩ	Inner Ring
NU 210 ECM	50 x 90 x 20	66.0 / 72.0	7500	>1000 VDC	>50 MΩ	Outer Ring
NU 214 ECM	70 x 125 x 24	121.0 / 140.0	5300	>1000 VDC	>50 MΩ	Outer Ring
NU 218 ECM	90 x 160 x 30	187.0 / 224.0	4300	>1000 VDC	>50 MΩ	Outer Ring
NU 222 ECM	110 x 200 x 38	297.0 / 375.0	3400	>1000 VDC	>50 MΩ	Outer Ring
NU 226 ECM	130 x 230 x 40	369.0 / 465.0	2800	>1000 VDC	>50 MΩ	Inner Ring
NU 310 ECM	50 x 110 x 27	112.0 / 116.0	6000	>1000 VDC	>50 MΩ	Outer Ring
NU 316 ECM	80 x 170 x 39	264.0 / 290.0	3800	>1000 VDC	>50 MΩ	Outer Ring
NU 320 ECM	100 x 215 x 47	391.0 / 440.0	3000	>1000 VDC	>50 MΩ	Outer Ring
NU 328 ECM	140 x 300 x 62	682.0 / 830.0	2200	>1000 VDC	>50 MΩ	Inner Ring

ELECTRICALLY INSULATED BEARINGS

CONNECT WITH US

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