

EXEL Insulating Rings and Tubes

Exel Insulating Rings and Tubes for Electrical Motors and Power Generators

Exel Composites produces composite solutions for demanding industrial applications. Our products are based on epoxy systems reinforced with E-glass, carbon and other fibres

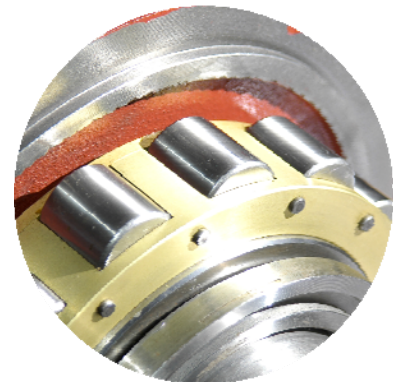
Exel Composites has

- Extensive knowledge of winding technologies
- Design capabilities based on 50 years experience in composites industry
- Excellent knowledge of chemistry and composite structures
- Machining capabilities to meet customer's demands

Exel has developed a range of composite insulating rings and tubes and support components for the insulation of generators, electrical motors and hydropower turbines.

Typical applications include:

- Insulation rings for power generators
- Insulation rings for electrical motors
- Insulation of hydro power turbines
- Insulation of bearing systems
- Insulation of switches
- Insulation tubes for various applications
- Support rings for rotor and motor components



Exel insulating products are based on epoxy systems reinforced with glass, carbon and other fibres



Exel Composites manufacture support rings for rotor and motor components



Superior features of Exel Insulation rings and tubes:

- Exceptional strength and toughness
- Heat resistance, classes H and F
- Good temperature resistance also in low temperatures (-50°C)
- Excellent corrosion and chemical resistance
- Superior electrical insulation properties
- No moisture pick up

The benefits of the insulation ring compared to thermoplastic tape winding insulation system:

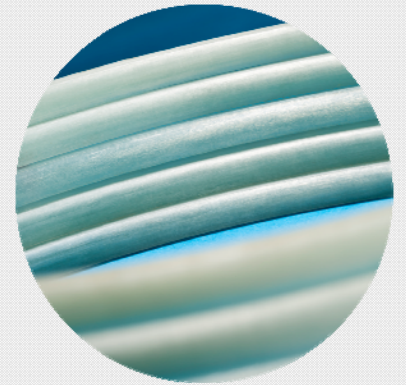
- Faster insulation process in production than with thermoplastic tapes
- Very good insulation properties and more constant insulation properties compared to thermoplastic tape insulation
- Superior fatigue properties on broad temperature range (-30°C—+200°C) because of excellent mechanical properties of the glass–epoxy composite material and filament wound structures

Production Capabilities

TUBES	RINGS
From 20 mm to 300 mm OD	From 100 mm up to 1000 mm OD
Wall thickness from 1,00 up to xx mm	Wall thickness from 2,00 up to 100 mm
Length: according to customer need	Length: up to 500 mm

Special Characteristics of tubes and rings

Glass fiber content	> 72 w-%
E-modulus	> 40 GPa
Surface resistance	> 1,1 x 10 ⁽¹³⁾ Ωm
Linear thermal expansion coefficient	8 - 35 x 10 ⁽⁻⁶⁾ /m K
Thermal conductivity	0,77 W/Km
Water absorption	< 0,03 %
Heat resistance	> 155°C
Comparative tracking index CTI	> 400 V
Dielectric breakdown strength, 50 Hz at 20°C	> 10 kV/mm



Insulation rings are available from 100 mm up to 1000 mm outer diameters



Exel glassfiber tubes have excellent insulation properties



Exel Insulation rings are used e.g. in wind mill power turbines

