HOW TO SPECIFY A SLIP RING

INTRODUCTION

It is very important for Fabricast's engineers to understand a customer's application in order to specify the best slip ring assembly for their application. Outlined below are the major considerations Fabricast's engineers will need to know about an application. Our **Slip Ring Specification Form** is provided on the following page to assist in defining your application.

DEFINING SLIP RING APPLICATION

What is the application the slip ring will be used in? By defining the basic type of application (automated medical equipment, semiconductor robot, stabilized camera system, radar pedestal, centrifuge, etc.), Fabricast will draw on prior experience and knowledge in specifying and designing your slip ring.

DEFINING BASIC SLIP RING DESIGN

Fabricast manufactures both separate rotor & brush block and self-contained slip ring assemblies. Self-contained slip rings consist of a rotor, stator and integral ball bearings that maintain the alignment between the two. The self-contained slip ring, although larger and generally more expensive, offers the following benefits: **1)** ease of integration into the customer's system, **2)** the customer is not responsible for the correct brush pressure and alignment at the brush/ring interface, and **3)** the brush/ring interface is not exposed. The separate rotor & brush block assemblies consist of two components, the rotor and the brush block. The separate rotor and brush block type slip ring is generally smaller and less expensive than a self-contained unit, but the customer is responsible for mounting the brush block and maintaining the correct brush block/rotor relationship.

DEFINING ELECTRICAL REQUIREMENTS

The current carrying capacity and voltage of each ring should be specified. Fabricast will determine the number of brushes per ring and the lead wire size based on the current carrying capacity of each ring. Ring to ring spacing is determined by the specified voltage of each ring and the mechanical requirements of the assembly. To achieve the most cost effective solution and the smallest mechanical envelope, do not rate all rings at current and voltage of highest rated rings. The current and voltage of each ring or set of rings should be specified individually.

DEFINING MECHANICAL REQUIREMENTS

Mechanical Considerations

The specified RPM and duty cycle will be used to select appropriate brush contact material, bearings, and other slip ring components. Fabricast has extensive experience in high RPM slip ring assemblies.

Mechanical Envelope

The bore diameter will define which of Fabricast's standard assemblies will be used. The length and outside diameter of these assemblies are shown in the catalog. It is important to determine the maximum mechanical envelope so Fabricast can specify the most cost effective solution with optimum mechanical and electrical design characteristics if modifications or a custom assembly is required.

System Interface Requirements

How will the slip ring integrate into the system? Fabricast's standard slip rings are manufactured with unobstructed thru bores for shaft mounting. Mounting methods for our standard assemblies are shown in the catalog. Electrical connections to Fabricast slip rings are via unterminated flying leads on the rotor side and solder terminals on the stator side. Non standard rotor lead lengths and stator wiring are optional.

DEFINING OPERATING ENVIRONMENT

It is critical that Fabricast understand the environment the slip ring will operate in. If the slip ring operates in extremely high temperatures, altitude, hard vacuum, dry nitrogen, oil, or other special environments, Fabricast may need to incorporate special materials of construction or other design modifications.

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