

## When should you buy a complete new commutator?

### Most of the time, don't.

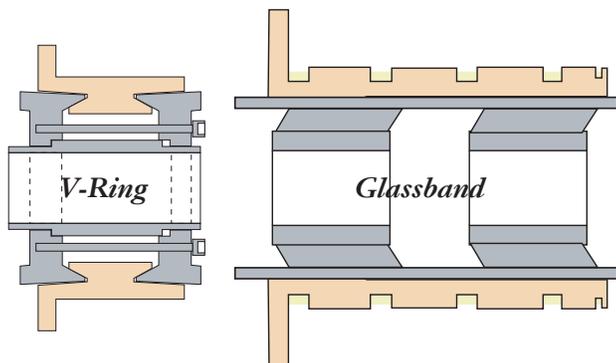
A "new" commutator refers to a commutator designed and built from scratch, including all copper, mica and steel components.

### The key is steel:

The only time you need a new commutator is when you do not have an existing steel part in good condition to fit the style and size of commutator you need.

- Conversion
- Replacement of damaged parts
- Spare
- Design improvement

**Conversion:** When an existing unit is molded (i.e. nonrefillable), the commutator needs to be replaced. Either a new molded unit, if available, can be purchased, or a new v-ring or glassband refillable commutator can be manufactured. None of the steel components of molded commutator should be re-used (see Motor Fax Issue 11) due to design limitations and space requirements for maximum stability. Conversions between refillable types also require new steel parts.



For example, applications where a v-ring commutator has been deemed to be better suited than the originally designed glassband commutator will require a new design overall which includes steel.

**Replacement of Damaged Parts:** Whether damaged from arcing in operation, galded or warped from removal from the shaft, or cracked due to porous castings, damaged steel parts must be replaced to ensure stability of the commutator in operation.

**Spare:** With the aim of reducing down time for the future, manufacturing a spare new unit is another circumstance in which new steel is a requirement. Either purchased from the OEM or designed by an aftermarket manufacturer, key dimensions can be obtained from prints or from the existing unit, ideally upon refill. Alternatively, if shaft profile information is available, along with any flange mount details if required, a new unit can usually be designed. As long as accurate and detailed information about the external dimensions of the commutator and its application environment is available, a new commutator can typically be designed to fit.

**Design Improvement:** In some cases, an existing steel design may cause problems in a specific application. For example, a v-ring commutator with a floating front cap and no spool may prove unstable or particularly susceptible to contamination in the wrong environment. New steel can be designed to incorporate a front bore fit and spool to address the operational issues. In short, buying a new commutator when a refill is an option is rarely the most cost effective or timely choice. With no sacrifice in quality by re-using good quality steel parts, refilling a commutator typically represents the best option available in motor repair.

Should you or your customer have any questions regarding this issue, contact an ICC representative and we will be happy to assist you in making a decision on your specific situation.