



# ALLIANCE

---

Joyal Products Incorporated was founded in 1947. Through the years Joyal® has developed many specialized machines, used in the wire joining and resistance welding areas. Systems include:

1. **Commutator Fusing Machines:** Used to join insulated copper magnet wire to tang type commutators. This process does not require the addition of extra material (i.e. tin or brazing bar) and is very fast. Fusing may also be used in some small slotted commutator applications with fine wire.
2. **Commutator Brazing Machines:** These are for joining insulated copper magnet wire to slotted type commutators (either riser style or riser less style). This process is used with high current armature applications in large armatures or armatures used in automotive applications. While it uses a standard fusing head, additional brazing material is usually required to assure an adequate connection.
3. **Other Brazing Machines:** Many applications for stators and armatures use insulated rectangular copper magnet wire. The process would use brazing technology to make the connection and are very similar to commutator brazing. The insulation must be removed before the brazing operation.
4. **Lead to Magnet Wire Fusing (Fuse-A-Wire):** The system makes the connection without the need of terminals using the patented "fuse-a-wire" process. This is new technology. It allows the insulated copper magnet wire to be joined directly to a pre-tinned lead wire without the need of an extra connector. This technology could be used for all low current/light duty distributive wound stator manufacturers (blower motors, appliance motors etc...)
5. **Lead and/or Magnet Wire Fusing (Tube Fuser):** Tin fusing technology requires for all of the insulated copper magnet wires and lead wire to be placed in a tinned copper tube for fusing. The applications is best suited for large bundles of insulated copper magnet wire that need to be joined (i.e. more than 3 wires in parallel). This process does not require the copper magnet wire to be stripped before connecting.
6. **Bobbin Fusing Machines:** There are two technologies that can be used for fusing bobbins. The first is a standard fusing machine that is very similar to the commutator fuser for armatures except that it does not have an indexer. This is used when the insulated copper wire from the bobbin is put into a tang type terminal  
The second technology a Hot Shoe fusing system. This may be used when the wire from the bobbin is wrapped around a tinned pin. Two (2) electrodes, which are preheated, perform the fusing operation.
7. **Miscellaneous Machines:** Joyal® also provides systems to slot commutators as well as automatically stuff leads into the commutator slot.



# ALLIANCE

## Information required to quote is as follows:

1. **Commutator Fusing Machines:**
  - a. Drawing of commutator & finished armature
  - b. Wire size range, type & insulating rating
  - c. Sample of armature before and after fusing
  - d. Required production rate
2. **Commutator Brazing Machines:**
  - a. Drawing of commutator & finished armature
  - b. Wire size range, type & insulating rating
  - c. Type of brazing material currently use
  - d. Sample of armature before and after /brazing
  - e. Required production rate
3. **Stator Brazing Machines:**
  - a. Drawing of finished stator
  - b. Wire size range, type & insulating rating
  - c. Type of brazing material currently use
  - d. Sample of stator before and after /brazing
  - e. Required production rate
4. **Lead to Magnet Wire Fusing (Fuse-A-Wire):**
  - a. Connection drawing & drawing of the finished part
  - b. Wire size range, type & insulating rating of both the lead & magnet wire
  - c. Sample of the part and & connection
  - d. Required production rate
5. **Lead and/or Magnet Wire Fusing (Tube Fuser):**
  - a. Connection diagram & drawing of the finished part
  - b. Wire size range, type & insulating rating of both the lead & magnet wire
  - c. Sample of the stator & connection
  - d. Required production rate
6. **Bobbin Fusing Machines:**
  - a. Drawing of bobbin and terminals
  - b. Wire size range, type & insulation rating
  - c. Sample of bobbin before and after fusing
  - d. Required production rate
7. **Commutator Cutting Machine:**
  - a. Drawing of commutators & slots of the finished part
  - b. Samples of commutators
  - c. Required production rate