



## System For Filling Compules and Syringes With Materials Such as Composites and Restoratives

### Filling & Dispensing Systems, Valves and Controls

Tridak's High Pressure Filling System (HPFS) accurately fills containers such as Compules and Syringes with high to extreme viscosity filled or unfilled materials such as composites and restoratives. Another version of the machine allows these materials to be extruded and cut off in precise lengths.

The tooling is custom designed to allow optimum fill rates for specific packages. For instance, typical Compules can be tooled so that up to 5 can be filled simultaneously while Syringes are usually filled one at a time.

The HPFS is bench-top mounted and very simple to operate. It consists of the base system (the machine itself) and refillable Glass/Epoxy Cartridge/Piston assemblies, which hold the bulk material. These Cartridges and Pistons units, which the user pre-fills, can also be supplied in Stainless Steel or Chrome Plated steel where the application requires. The Cartridge system allows the materials to be prepared off-line and permits the user to conveniently store materials for future use in the HPFS (the cartridges are supplied with removable end caps for storage -- see figure X).

The Base System is made up of 2 sections (see Figure X) – the High Pressure Drive/Controls Module and the Oven module. The High Pressure Drive/Controls Module, as the name implies, contains the systems control logic as well as all of the high pressure drive components necessary to create the forces necessary to move the materials being dispensed. The oven module is a forced convection type with advanced PID controls for accurate temperature control. The oven, which has a removable cover for easy Cartridge loading (see figure X), allows the materials to be heated. This, in most materials, lowers the viscosity and improves the flow characteristics. Typically these temperatures are in the 90 to 150 Fahrenheit range although the unit is capable of temperatures up to 250 degrees Fahrenheit. In rare cases, where heating would, in some way, damage the material being dispensed the unit can be used at room temperature.

The amount of fill is controlled by a very repeatable Hall Effect sensing system. In operation the container to be filled is placed over a nozzle. A pressure plate advances to hold the container in position and provide a slight pressure. The operator depresses a footswitch to initiate the cycle. The material is pressurized and starts to fill the container/s. as the container fills in moves away from the nozzle. This action continues until it has moved a distance that corresponds to the required fill. The Hall effect sensing system detects this distance and automatically stops the fill. The pressure plate is retracted and the filled container is removed.

