

Adhesive Bonding



Adhesive bonding is the process of joining two work pieces securely by using a liquid or semi-liquid material to create a long-lasting bond. In a high-volume manufacturing environment, adhesive is usually applied using specialized application equipment. Adhesives can be dispensed in a continuous bead or dots using automation equipment, or applied manually using a hose-fed handgun system.

Virtually every product assembled requires bonding or sealing at some stage of the process. Graco offers manual and automated technologies for single-component and two-component bonding and sealing for a broad array of products, markets and end-uses.

Single-component bonding and sealing

Single component adhesives and sealants such as silicone sealants, UV curable acrylates, urethanes and epoxies are used widely in the assembly of component parts from as small as surface mount electrical components to appliances and automobiles. Single-component materials are chosen primarily for their ease of use but they have a long curing process unless energy is used. The keys to the successful application of these materials are: understanding the chemistry, transferring the materials out of the shipping containers, creating repeatable flow rates or shot size, actuation and design of the dispense valve and finally equipping the system for automation or manual process.

Two-component bonding and sealing

Typically selected because of their fast-curing nature, two-component materials require meter, mix and dispense machines. Graco provides manually operated adhesive dispensing machines with hand-held guns, as well as fully automated dispensing machines that are integrated with production lines or robots. The key success factors for applying reactive two-component adhesives or sealants are: knowing the chemistry, accurately metering the individual components and finally mixing the two components as they are applied to a part. Graco equipment ranges from systems that dispense minute amounts of adhesive up to very large-scale meter-mix machines custom built for robotic processes.