AN INTRODUCTION TO PINS AND WASHERS

The pin and washer product families are distinctive in appearance and application. They are included in the same section of this book for editorial convenience. Both products are important and contribute to a broad range of applications and assembly considerations.

Pin Fasteners

These offer a myriad of design and material choices where service loading is primarily shear. Pins often are used in hinge connections, in locating various components, to provide bearing surfaces and lend themselves to automated assembly particularly since they require no threading. There are four distinct styles or classifications for pins including:

- clevis and cotter pins
- taper, dowel and straight pins
- grooved solid and knurl
- spring slotted (tubular) and coiled

Installation or removal is accomplished by the application of pressure by hand or through use of custom engineered insertion equipment, fixtures and tools. Product design features and assembly techniques facilitate use in automated assembly.

Washers

Used frequently to provide a bearing surface which functions to spread the clamp load over a larger surface area. Washers also may have features to resist loosening of the screw or bolt with which they have been installed or to seal and prevent leakage. Joints which require carefully controlled tightening to generate specific clamp load ranges often use washers to provide a controlled surface against which the nut or fastener head configuration may be turned during tightening.

Another widely used washer is a SEMS washer which is captive to the bolt or screw on which it has been assembled during manufacture, see page G–102.

Washer families include:

- plain or flat
- lock or split
- beveled
- toothed
- compressible
- SEMS