

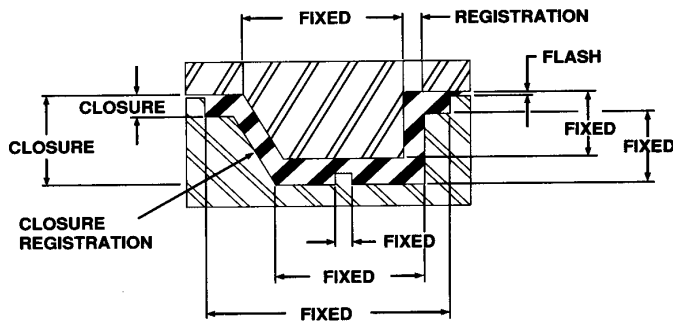
Dimension Terminology

The following will provide a common terminology for use in discussing dimensions of molded rubber products, and for distinguishing various tolerance groupings:

Fixed Dimension: Dimensions not affected by flash thickness variation. (Mold Closure) See Figure #1.

Closure Dimensions: Dimensions affected by flash thickness variation. (Mold Closure) See Figure #1.

Figure 1



In addition to the shrinkage, mold maker's tolerance, trim and finish, a number of other factors affect closure dimensions. Among these are flow characteristics of the raw stock, weight, shape of preform and molding process.

While closure dimensions are affected by flash thickness variation, they are not necessarily related to basic flash thickness. If a manufacturer plans to machine or die trim a product, the mold will have a built-in flash, which will be thicker than if hand deflashing or tumble trim were to be employed. Thus products purchased from two sources could have different basic flash thickness at the parting line and yet meet drawing dimensions.

There is usually a logical place for the mold designer to locate the parting line for best dimensional control and part removal. If the product design limits this location, an alternate mold construction will be required, which may affect the tolerance control on the product, and may, in some cases, increase the cost of the mold.

Registration Dimension: Dimensions affected by the matching of the various plates of the mold that form the mold cavity. Register is usually controlled by dowel pins and bushings or by self-registering cavities.

TOLERANCE TABLES

There are four levels of dimensional tolerances that are used for molded rubber products.

"A1"	High Precision
"A2"	Precision
"A3"	Commercial
"A4"	Basic

The level selected should be based upon the need with the following guidelines.

"A1" is the tightest tolerance classification and indicates a high precision rubber product. Such products require expensive molds, fewer cavities per mold, costly in-process controls and inspection procedures. It is desirable that the exact method of measurement be agreed upon between rubber manufacturer and customer, as errors in measurement may be large in relation to the tolerance. Some materials, particularly those requiring post curing, do not lend themselves to Drawing Designation "A1" tolerances.

"A2" tolerances indicate a precision product. Molds must be precision machined and kept in good repair. While measurement methods may be simpler than the Drawing Designation "A1", careful inspection will usually be required.

"A3" tolerances indicate a "commercial" product and will normally be used for most products.

"A4" tolerances apply to products where some dimensional control is required but is secondary to cost.

When applying tolerances the following rules should be kept in mind.

1. Fixed dimension tolerances apply individually to each fixed dimension by its own size.
2. Closure dimension tolerances are determined by the largest closure dimension and this single tolerance is used for all other closure dimensions.
3. Fixed and closure dimensions for a given table do not necessarily go together, and can be split between tables.
4. Tolerances not shown should be determined in consultation with the rubber manufacturer.
5. Care should be taken in applying standard tolerances to products having wide sectional variations.