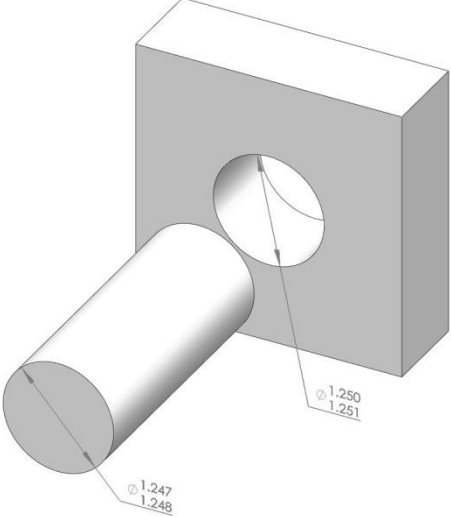
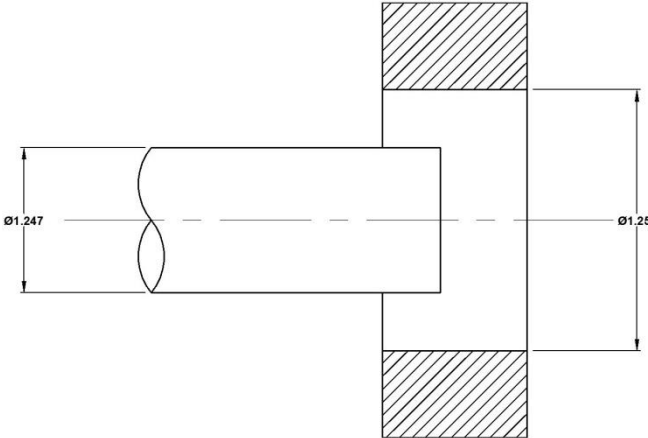
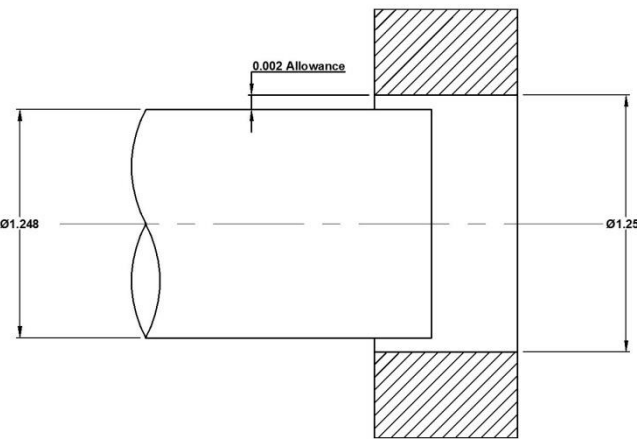
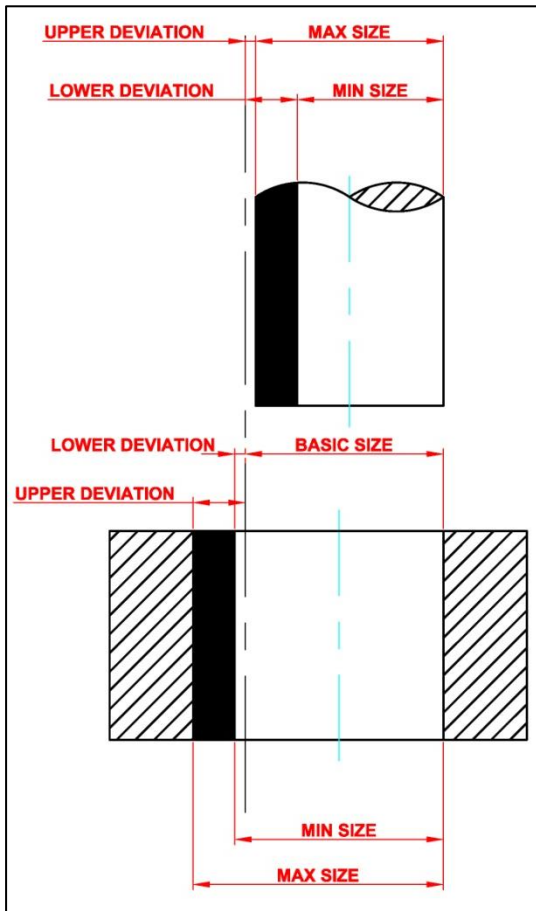


**Fits Between Mating Parts.**

<p><i>Shaft tolerance</i> = 1.248 – 1.247 = 0.001</p>  <p><i>Hole tolerance</i> = 1.251 – 1.250 = 0.001</p>	 <p>(a) Loosest fit: Smallest shaft in largest hole</p>
 <p>(b) Tightest fit: Largest shaft in smallest hole</p> <p><i>Allowance</i> = 1.250 – 1.248 = 0.002 <i>Max clearance</i> = 1.251 – 1.247 = 0.004</p>	<p><b>There are three general types of fits between parts:</b></p> <p><b>Clearance Fit:</b> When an internal part fits into an external part with space.</p> <p><b>Interference Fit:</b> When the internal part is larger than the external part, so the parts must forced together.</p> <p><b>Transition Fit:</b> Refers to either tight clearance or interference.</p>



**Upper Deviation:** the difference between the maximum limit of size and the basic size

**Lower Deviation:** the difference between the minimum limit of size and the basic size.

**Tolerance:** the difference between the maximum and minimum size limits on a part.

Terminology	Example	Explanation
Basic size	1.500	
Basic size with tolerance added	$1.500 \pm .004$	Half of total tolerance
Limits of size	1.504	Largest permitted size
	1.496	Smallest permitted size
Tolerance	.008	Difference between limits of size