

VALLEY FORGE & BOLT'S PATENTED BALL LOCK™ WASHER

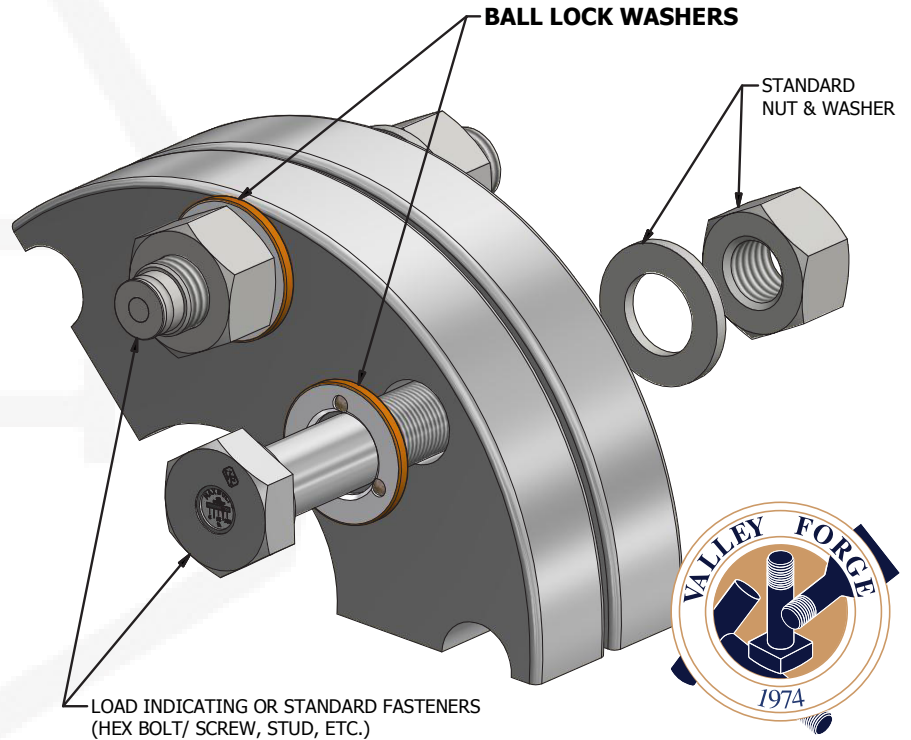
HOW IT WORKS

Three ball-bearings are installed at the load bearing region of the washer and sized to protrude between 0.008" – 0.036" on each side, depending on size.

Upon tightening, the hardened (60 HRC) ball-bearings embed into both the mating joint surface and the bearing surface of the fastener.

Ball embedment will result in a positive-lock between the two components preventing rotation of the fastener during initial torquing and again during break-out.

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INSTALLATION & USE

- Ball Lock Washers should not be compared to or viewed as a conventional 'lock' washer; instead they are a tool to be used as a substitute for a backup or reaction wrench during tightening/loosening.
- During joint make-up and assembly the ball lock washers should be installed only on the end opposite from the torque wrench; they may never be used when installing fasteners into tapped holes.
- Because ball lock washers work on the principle of embedment, all bearing surfaces must be under 40 HRC; if hard joint surfaces are used or if the joint is subject to high-tensile bolting, ball lock washers may be ineffective.
- If desired, ball lock washers may be used in conjunction with hard round washers to prevent marring/embedment into flange surfaces, however these washers must be un-lubricated and may cause problems due to high hardness.
- During tightening bolt heads/nuts with ball-lock washers installed may need to be held briefly by hand to produce initial embedment before all rotation ceases; Full washer engagement will occur at approximately 10% of yield load.
- After assembly ball lock washers can be identified by orange edges; never wrench on the side of the fastener with ball lock washers as this may cause permanent damage to bearing surfaces on the joint and fastener.

ELIMINATE THE NEED FOR A BACKUP WRENCH AND PERSON HOLDING THE BACK UP WRENCH.

