Allowable Leakage Rate for NIBCO® Metal Seated Valves

Occasionally NIBCO Technical Services receives calls from customers claiming their valves are leaking at the seat/disc area. After some discussion, the degree of leakage is determined. Oftentimes, this leakage is minimal and is below the specifications allowable leakage rate.

NIBCO INC. does not manufacture valves to leak. However, when manufacturing two mating metal surfaces of bronze material, which in the case of gate valves, grind against each other when the valve is operated, you may find slight imperfections in these surfaces. MSS (Manufacturers Standardization Society) realizes these conditions exist and thus have written these allowances into their product specifications.

For comparison purposes, the following are examples of leakage rates as noted in the MSS Specifications below:

- 10 mL liquid = 2 Teaspoons = 1/3 oz.
- 40 mL liquid = 3 Tablespoons = 1-1/2 oz.

MSS SP-70 Cast Iron Gate Valves

- “The maximum permissible leakage rate on each seat shall be 10 milliliters per hour, per inch of diameter of nominal valve size.”
  (i.e. A 4” F-617-O Gate Valve can have a permissible leakage rate of up to 40 mL liquid per hour.)

MSS SP-71 Cast Iron Swing Check Valves

- “The maximum permissible leakage rate shall be 40 milliliters per hour per inch of diameter of nominal valve size.”
  (i.e. A 6” F-918-B Check Valve can have a permissible leakage rate of up to 240 mL liquid per hour.)

MSS SP-80 Bronze, Gate, Globe, Angle and Check Valves

- “The maximum permissible leakage rate for Gate, Globe and Angle Valves shall be 10 milliliters of water per hour per inch of diameter of nominal valve size.”
- The maximum permissible leakage rate for Check Valves shall be 40 milliliters of water per hour per inch of diameter of nominal valve size.”
  (i.e. A 2” T-111 Gate Valve can have a permissible leakage rate of up to 20 mL liquid per hour.)

MSS SP-85 Cast Iron Globe and Angle Valves

- “The maximum permissible leakage rate on each seat shall be 10 milliliters per hour per inch of diameter of nominal valve size.”
  (i.e. An 8” F-718-B Globe Valve can have a permissible leakage rate of up to 80 mL liquid per hour.)