

TURNOVER CALCULATIONS

I. Calculate volume in gallons (if unknown)

Rectangular*

Area = L (length) x W (width)

Gallons = area x average depth x 7.5

Circular*

Area = Radius x Radius x 3.14

Gallons = area x average depth x 7.5

*For more complex volume calculations, refer to your pool operator handbook.

II. Calculate flow rate in gallons per minute (gpm)

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| Swimming pool (6 hour max turnover rate allowed in MN) | Wading pool (2 hour max turnover rate allowed in MN) | Spa (30 minute max turnover rate allowed in MN) |
| Volume ÷ 6 hour turnover rate ÷ 60 min/hr = minimum flow rate required in Gallons/min (gpm) | Volume ÷ 2 hour turnover rate ÷ 60 min/hr = minimum flow rate required in Gallons/min (gpm) | Volume ÷ 0.5 hour turnover rate ÷ 60 min/hr = minimum flow rate required in Gallons/min (gpm) |

Note: Check the flow meter reading (gallons per minute (gpm)) against the calculated (minimum) flow rate you just produced. The flow meter reading should be close to this minimum or greater. If the flow meter reading (gpm) is less than the minimum requirement, verify the flow meter is functioning properly and is the correct size for the piping it is installed on.

-OR-

III. Calculate turnover rate (in hours)

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| Swimming pool (6 hour max turnover rate allowed in MN) | Wading pool (2 hour max turnover rate allowed in MN) | Spa (30 minute max turnover rate allowed in MN) |
| Volume ÷ known flow rate from flow meter(s) ÷ 60 min/hr = current turnover rate in hours (must be 6 hours or less) | Volume ÷ known flow rate from flow meter(s) ÷ 60 min/hr = current turnover rate in hours (must be 2 hours or less) | Volume ÷ known flow rate from flow meter(s) ÷ 60 min/hr = current turnover rate in hours (must be 30 minutes or less) |