

ROTATIONAL MOULDING FORMULAS

Volume of mould cavity VS volume of powder shot weight

(Applicable in determining resin weight for moulding any type of plastic part)

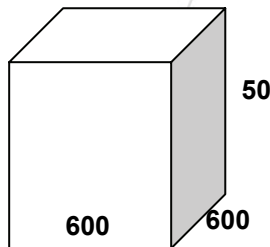
METRIC STANDARD

Formulas

V_{mc} Mould length x mould width x mould height
 V_{pp} Surface area (part) x desired wall thickness
 S_w V_{pp} x density (resin)

Where

V_{mc} Volume of mould cavity
 V_{pp} Volume of the plastic of the part
 V_{sw} Volume of powder shot weight
 S_w Powder shot weight



Sample Calculation

Mould dimensions 600mm L x 600mm W x 50mm H
 Density (resin) 0.94gm/cm³

Bulk Density 0.370 gm/cm³
 Desired wall thickness 5mm

Surface area $2(600 \times 600) + 2(50 \times 600) = 2(50 \times 600)$
 840,000mm²

V_{pp} 840,000mm² x 5mm = 4,200,000mm³ = 4,200cm³

S_w 4,200cm³ x 0.94gm/cm³ = 3,948gm

V_{sw} 3,948gm / 0.370gm/cm³ = 10,670cm³

V_{mc} 600 x 600 x 50 = 18,000,000mm³ = 18,000cm³

V_{mc} versus V_{sw} 18,000cm³ versus 10,670cm³

The volume of the mould cavity is large enough to accept the volume of shot weight required to produce a part of the desired wall thickness

Note: In order to have reliable comparisons, it is suggested to use the following margin of error:

- 1) +20% to V_{sw} because bulk density is never constant
- 2) -10% to V_{mc} because the volume is not always usable in its totality (especially when there are elaborate dimensions.)