

General Guide for How to Choose a PLASTEK Mould Heaters

1. How to calculate required heating capacity:

A = required heating capacity (kW)

B = net weight of the mould (kg) x specific heat of the mould material

T1 = required mould heating temperature (°C)

T2 = ambient temperature (°C)

$$\mathbf{A = B \times (T1 - T2) \div 860 \div 0.8 \text{ (safety factor)}}$$

[Example] B = 400 kg, T1 = 60 °C(ABS), T2 = 30 °C

Required heating capacity

$$= 400 \times 0.15 \text{ (steel)} \times (60 - 30) \div 860 \div 0.8$$

$$= 2.6 \text{ kW}$$

2. How to calculate required cooling capacity:

C = required cooling capacity (kcal/hr)

D = throughput of raw material (kg/hr) x specific heat of raw material

T3 = melt temperature of raw material (°C)

T4 = temperature of ejected moulding component (°C)

$$\mathbf{C = D \times (T3 - T4) \div 0.8 \text{ (safety factor)}}$$

[Example] D = 100 kg/hr, T3 = 200 °C(ABS), T4 = 50 °C

Required cooling capacity

$$= 100 \times 0.34 \text{ (ABS)} \times (200 - 50) \div 0.8$$

$$= 6400 \text{ kcal/hr}$$

3. How to calculate required pump capacity:

E = required pump capacity (litre/minute)

F = approx. medium volume in the heating chamber of mould (litre)

G = approx. medium volume in the connection hoses between mould and heater (litre)

$$\mathbf{E = (F + G) \times (10 \sim 20)}$$

Remark: Above calculation formulas are for reference as a guideline only and should however pay high respect to the field application experiences.