

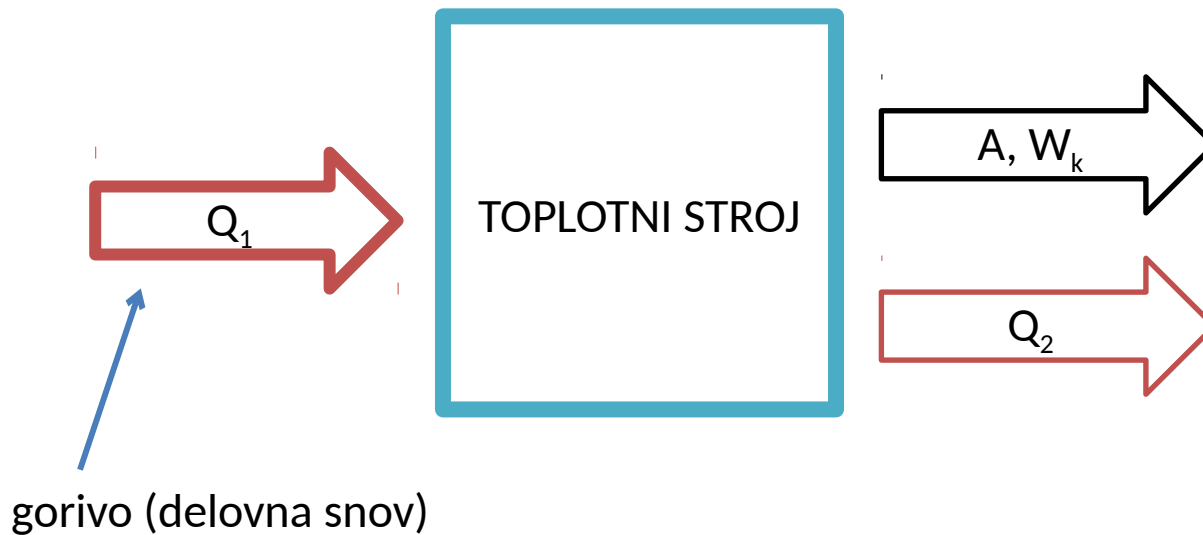
TOPLOTNI STROJI

predstavitev pri fiziki



Kaj je toplotni stroj?

$$A < Q_1$$



$$Q_2 = Q_1 - A$$

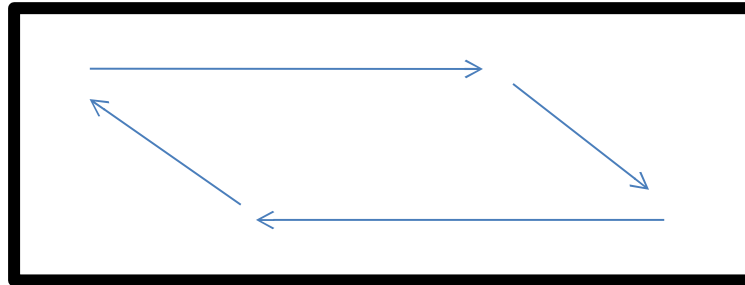
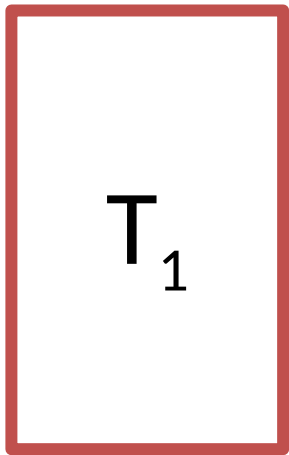
Krožne spremembe - cikel

$$\Delta W_n = 0$$

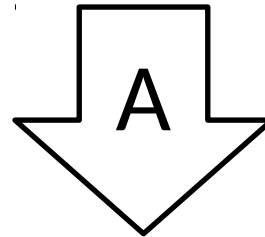
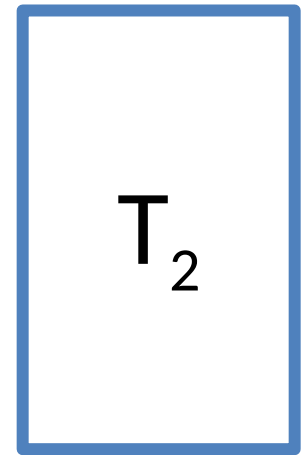
$$A + Q = 0$$

$$A = -Q$$

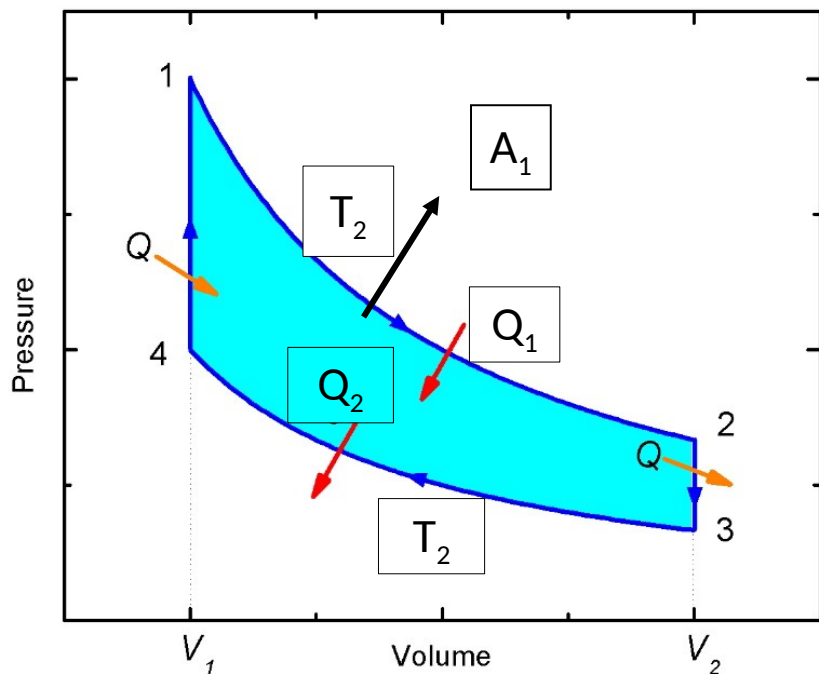
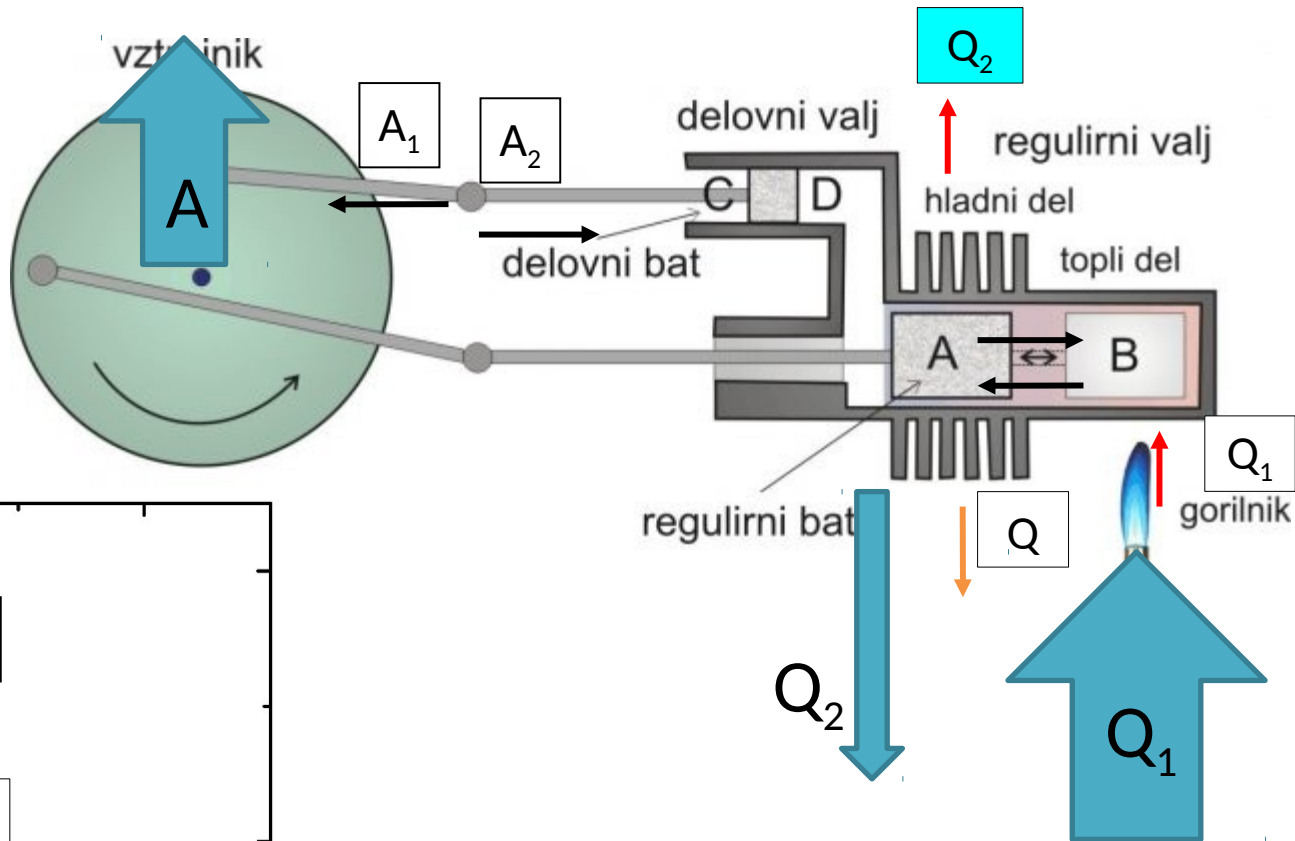
TOPEL REZERVOAR



HLADEN REZERVOAR



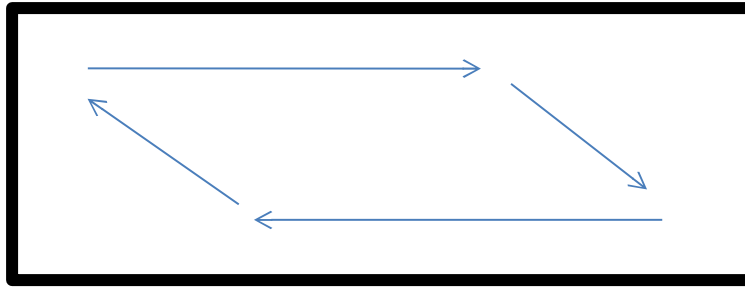
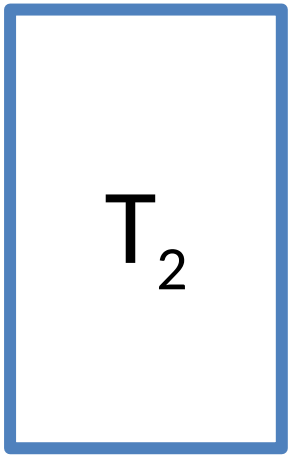
Krožne spremembe - cikel



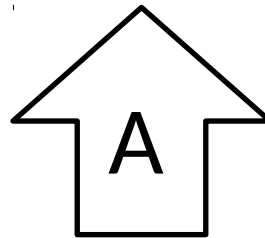
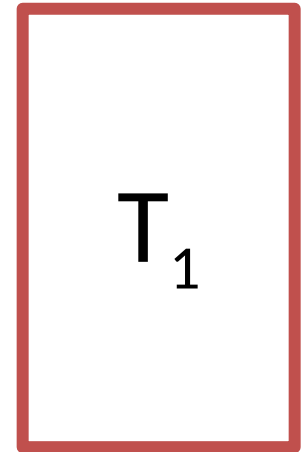
$$\eta = \frac{A}{Q_1} = \frac{Q_1 - Q_2}{Q_1} = 1 - \frac{Q_2}{Q_1} < 1$$

Hladilni stroj

HLADEN REZERVOAR

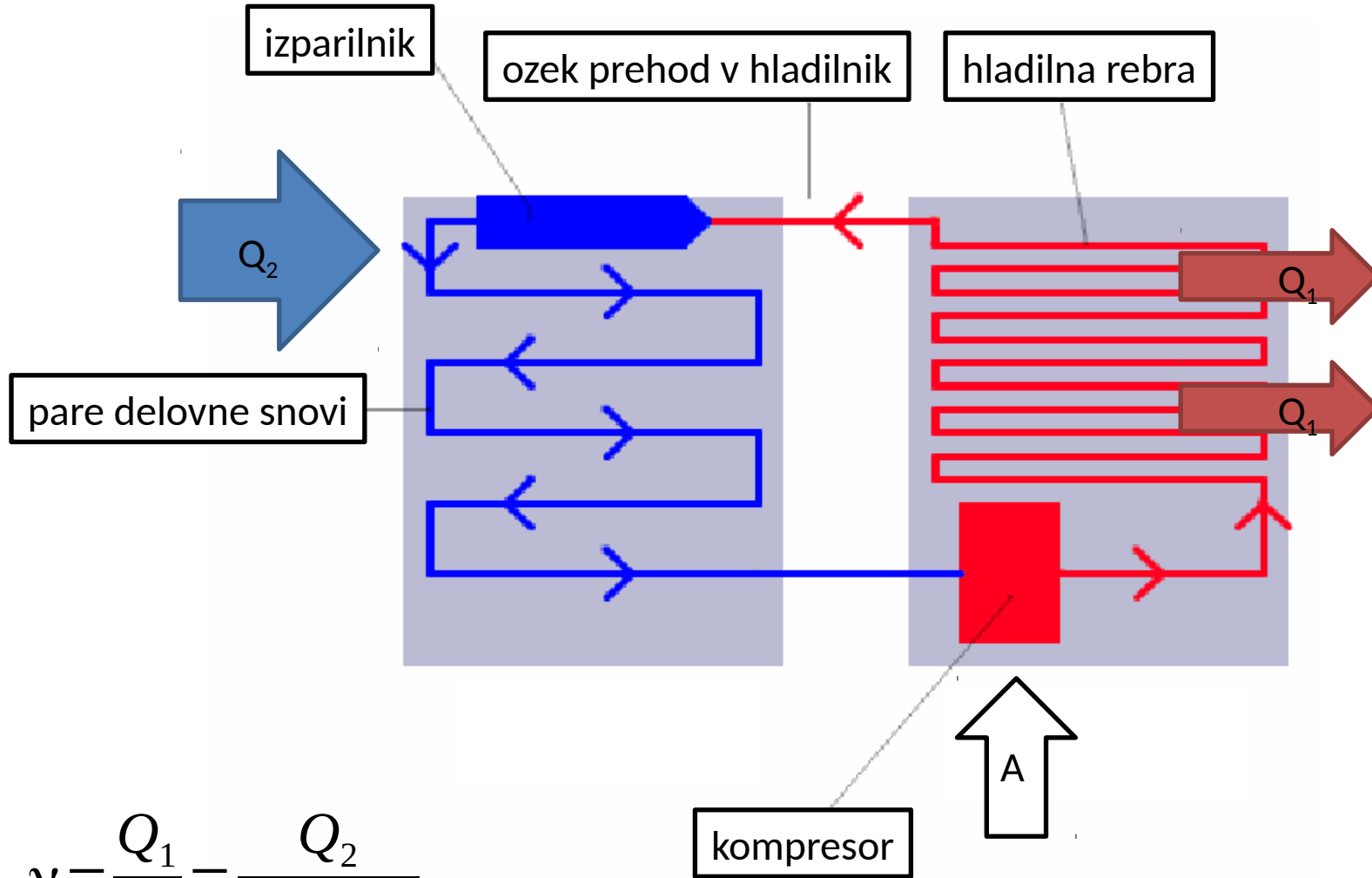


TOPEL REZERVOAR



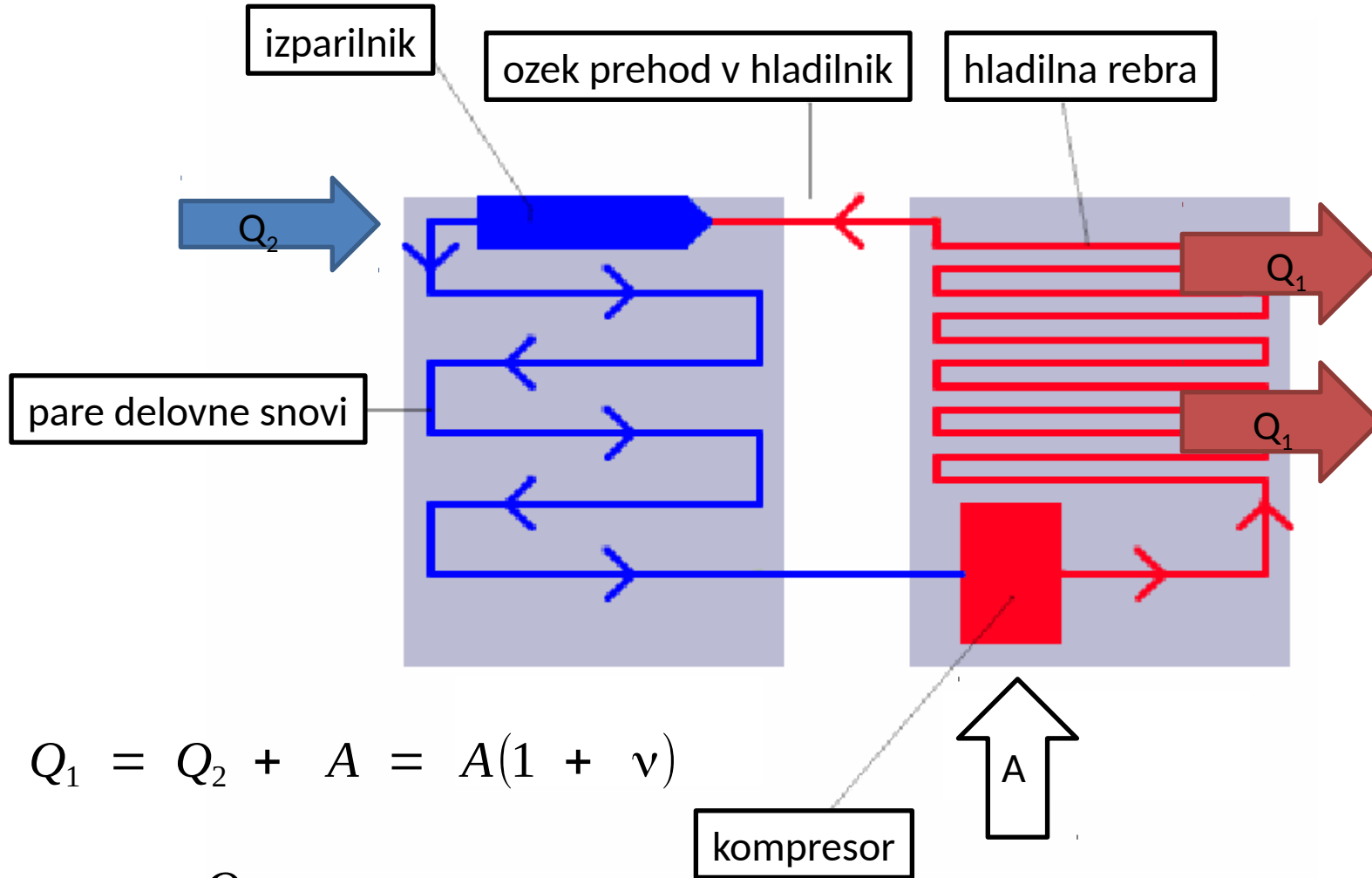
$$Q_1 = Q_2 + A$$

Hladilni stroj



$$\nu = \frac{Q_1}{A} = \frac{Q_2}{Q_1 - Q_2}$$

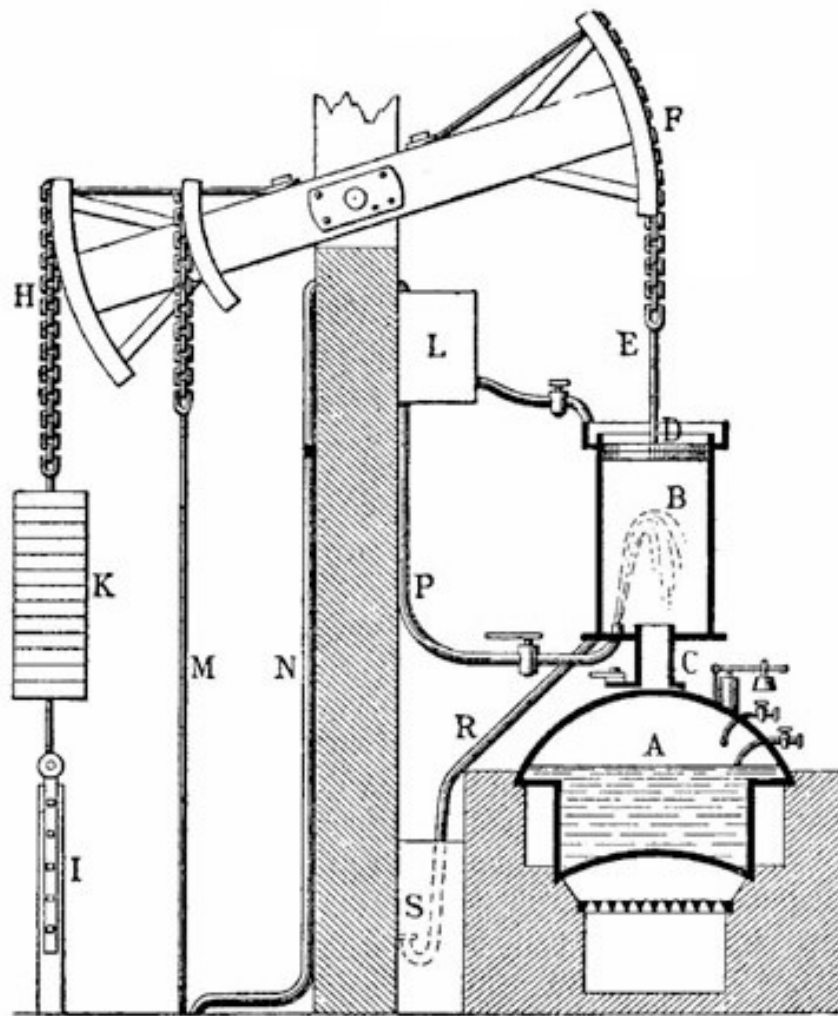
Toplotna črpalka



$$Q_1 = Q_2 + A = A(1 + v)$$

$$\frac{Q_1}{A} = 1 + v$$

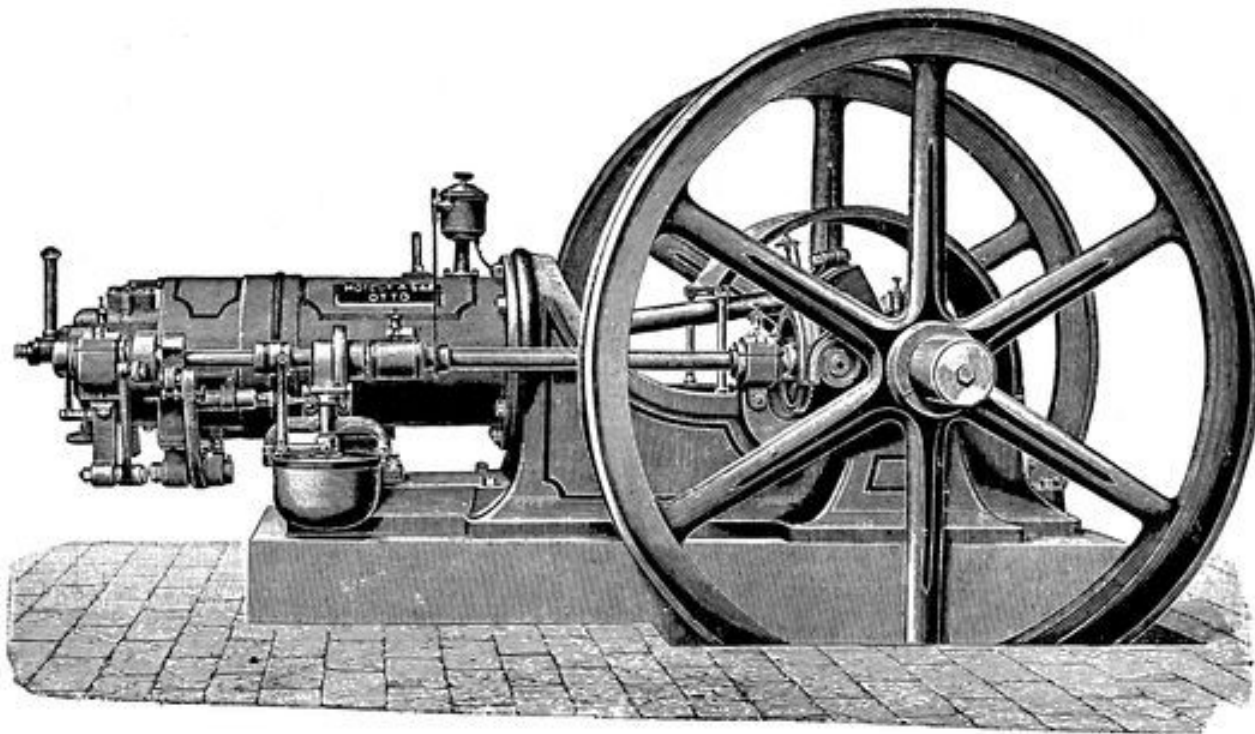
Parni stroj



$\eta = 1 - 20\%$

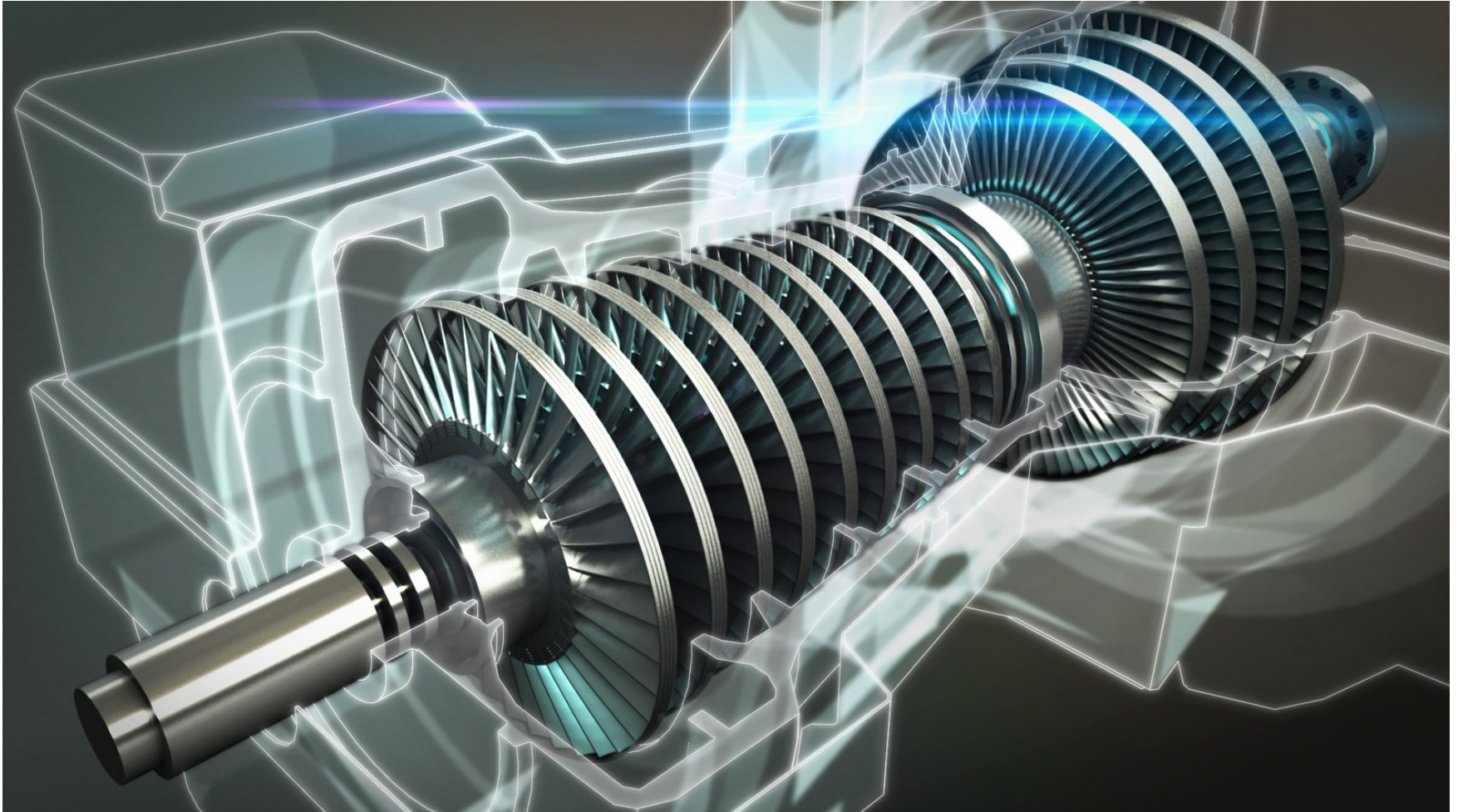
Motor z notranjim izgorevanjem

$\eta = 20 - 30\%$ (50%)



Elektrarne na paro

$\eta = 40 - 45\%$ (30 - 36%)

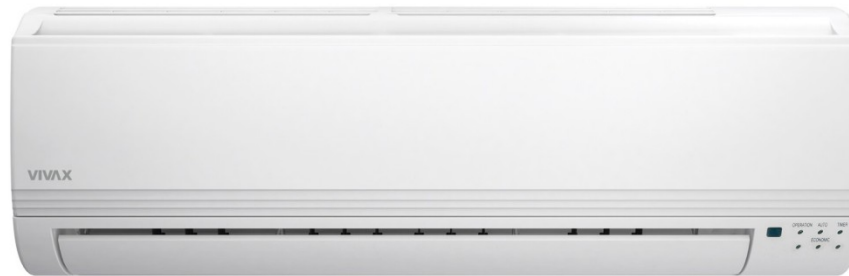


Hladilnik



$v = 0,5 - 3$

Klimatske naprave



v = 3 - 4



Toplotne črpalke



v = 3 - 7