



Peter Andersson

Elenergi

Vg1 elektrofag

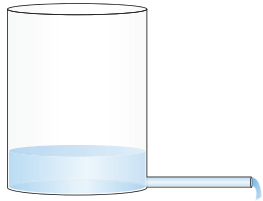
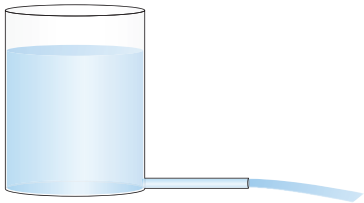
ELFORLAGET

Illustrasjoner til Elenergi Vg1 elektrofag

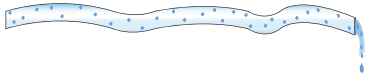
Kapittel 17

Illustrasjonene kan brukes fritt i undervisningen

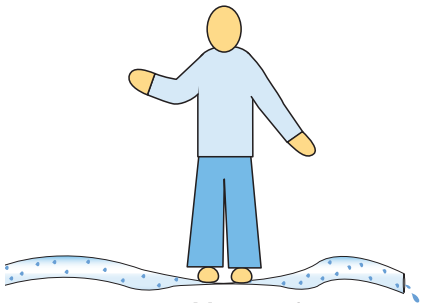
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Figur 17.1
Høy og lav spenning



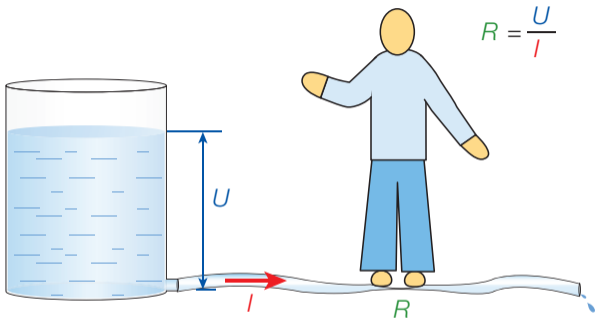
Figur 17.2
Vannslange med vanddråper



Motstand

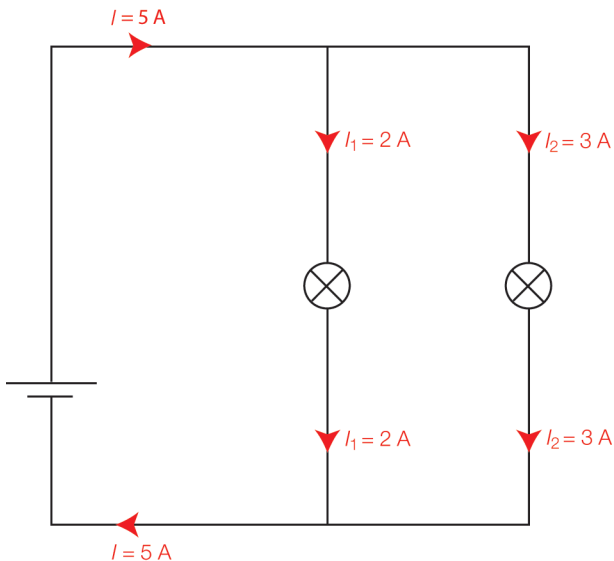
R

Figur 17.3
Motsand

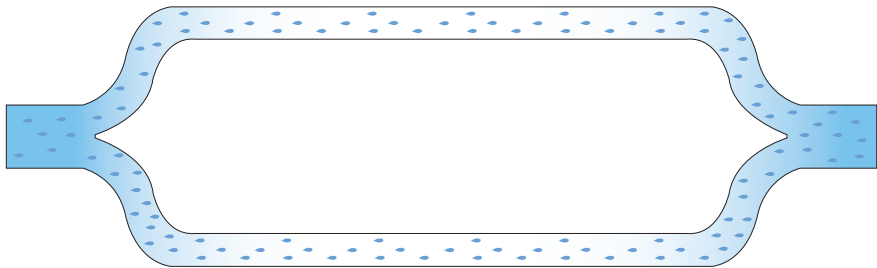


Figur 17.4

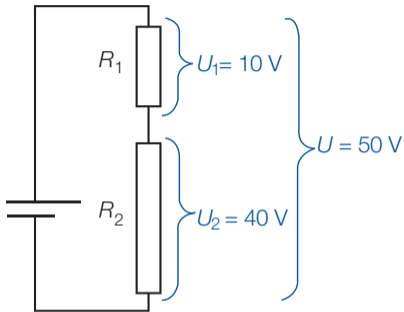
Ohms lov illustrert som en vannstrøm



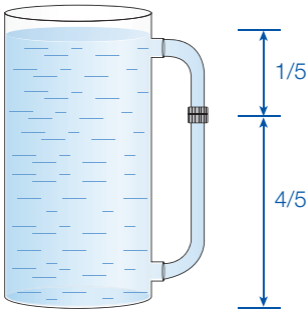
Figur 17.5
Kirchhoffs 1. lov



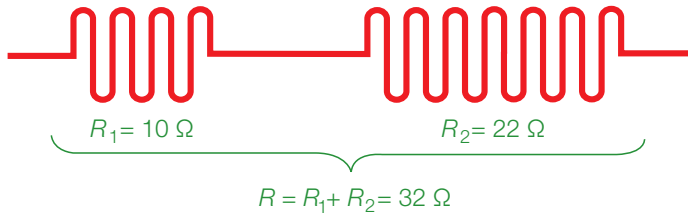
Figur 17.6
Forgreining



Figur 17.7
Kirchhoffs 2. lov

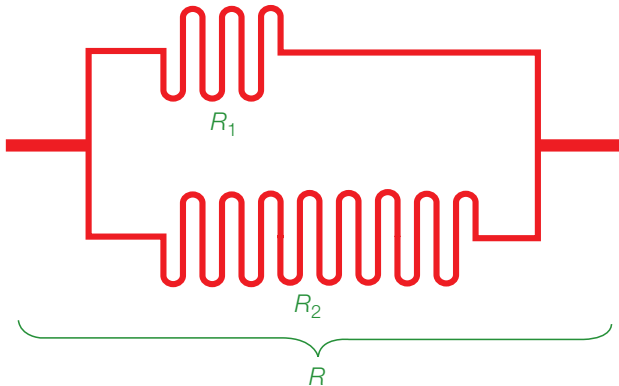


Figur 17.8
Vanntank med slanger



Figur 17.9

Seriekoblede varmekabler på 10 og 22 Ω

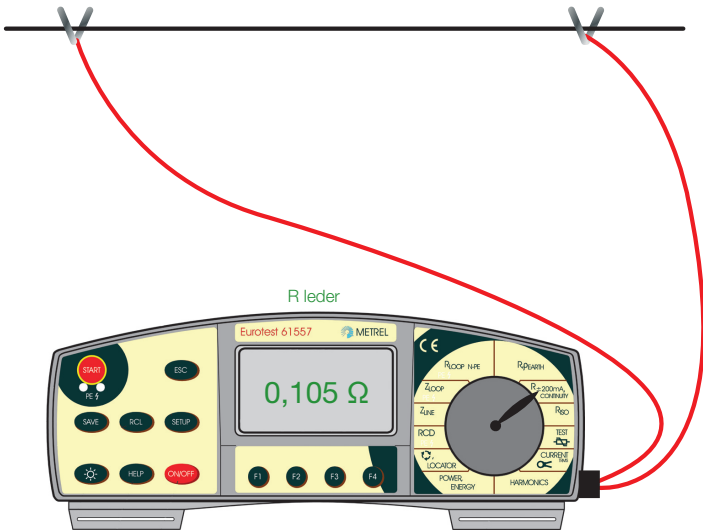


$$R \Rightarrow \frac{I}{R} = \frac{I}{R_1} + \frac{I}{R_2} \text{ eller}$$

$$R = \frac{R_1 \cdot R_2}{R_1 + R_2}$$

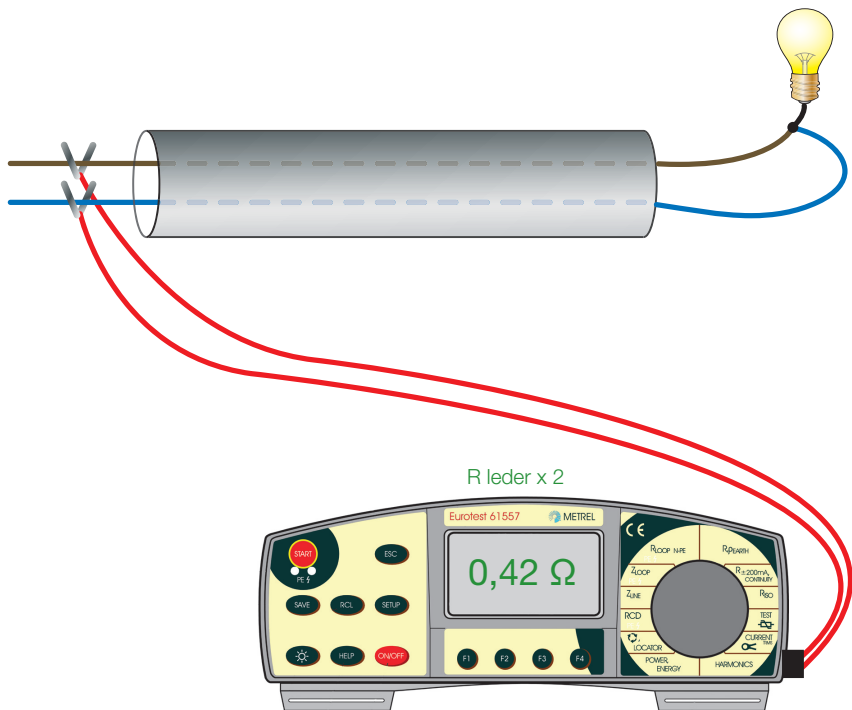
Figur 17.10

Parallellkoblede varmekabler på 10 og 22 Ω



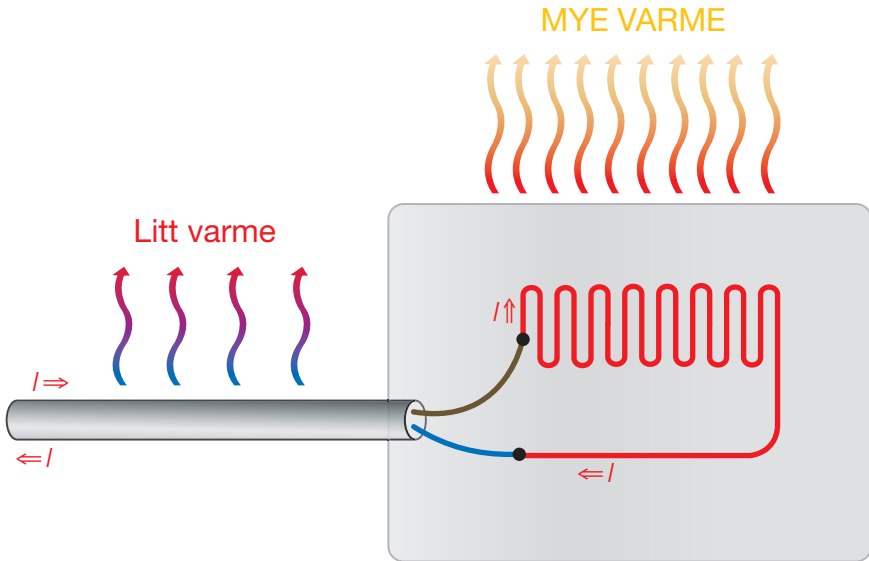
Figur 17.11

En leder og et instrument som måler resistansen



Figur 17.12

To ledere og et instrument som måler resistansen

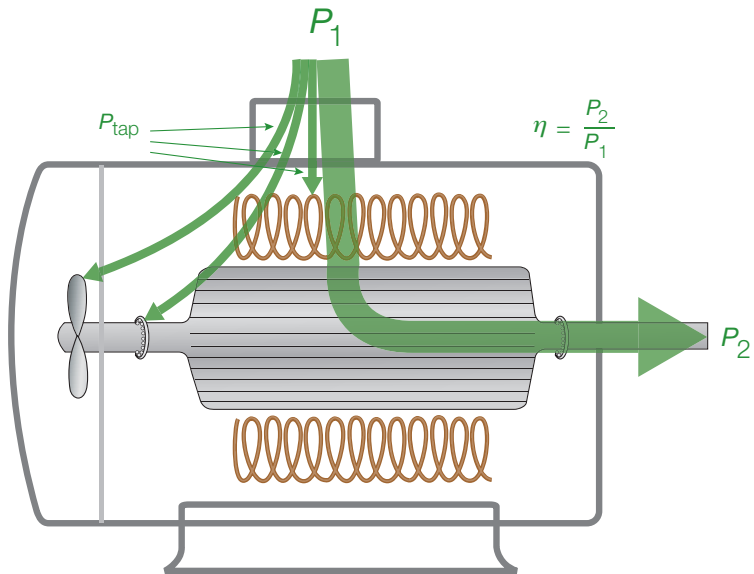


Figur 17.13
Kabel og panelovn



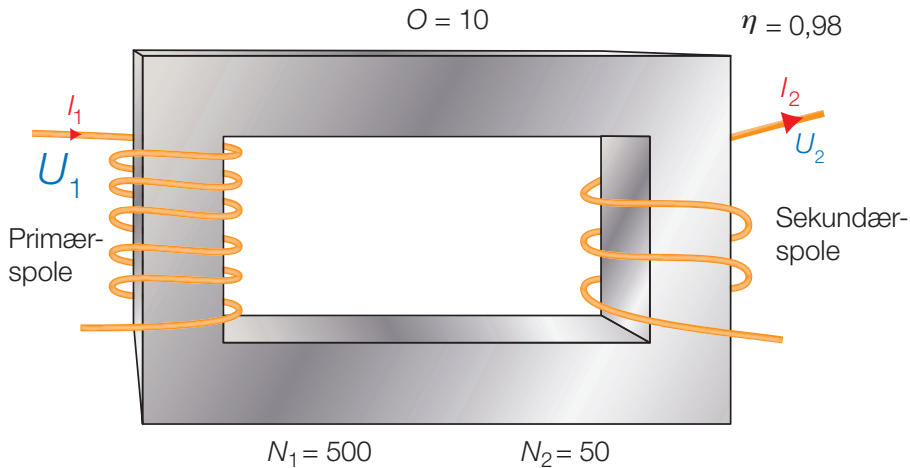
Figur 17.14

En sterk syklist kommer til toppen raskere enn en svak syklist

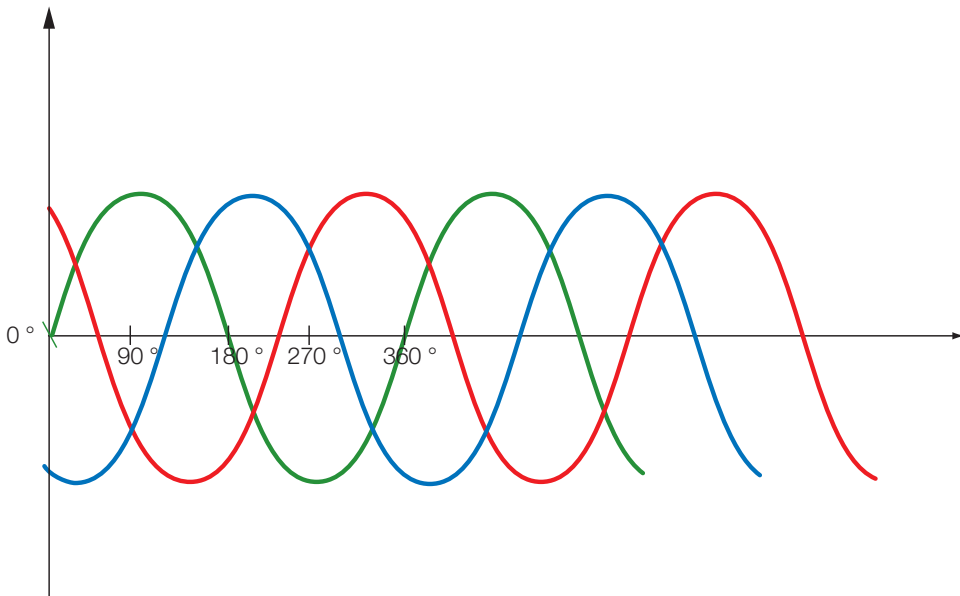


Figur17.15

Elektrisk apparat som tilføres energi med forskjellige tap

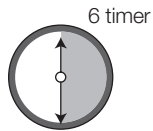


Figur 17.16
Transformator med primær- og sekundærspole

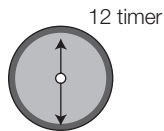


Figur 17.17

Tre sinuskurver med markering ved 0-gjennomgang



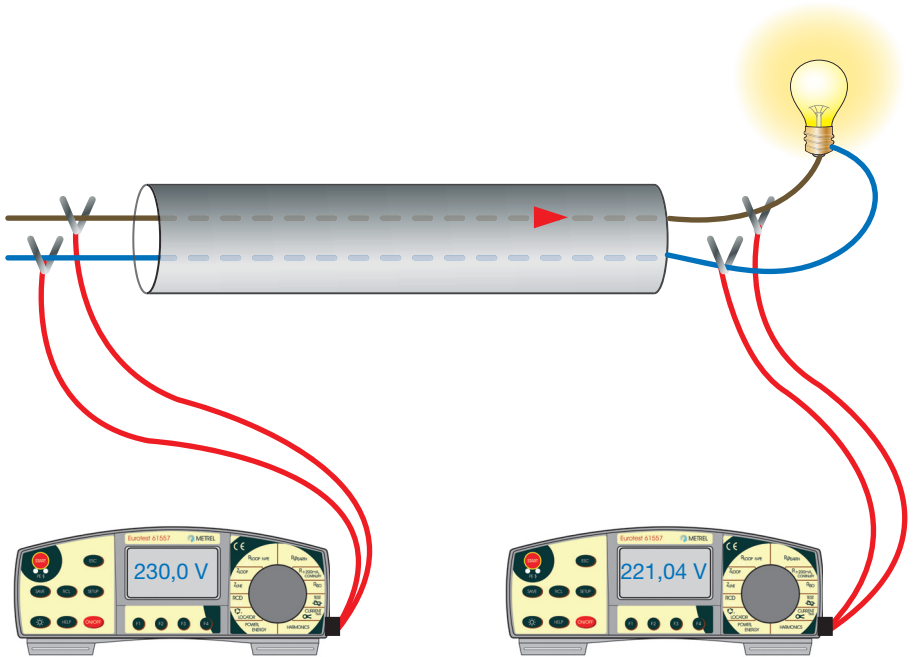
$$E = P \cdot t = 1000 \text{ W} \cdot 6 \text{ h} = 6000 \text{ Wh}$$



$$E = P \cdot t = 500 \text{ W} \cdot 12 \text{ h} = 6000 \text{ Wh}$$

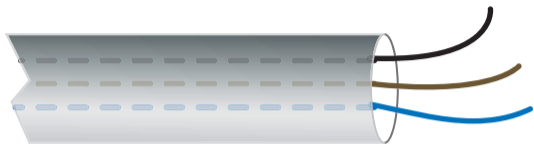
Figur 17.18

To syklister. En bruker kort tid og en bruker lang tid, men begge sykler like langt



Figur 17.19

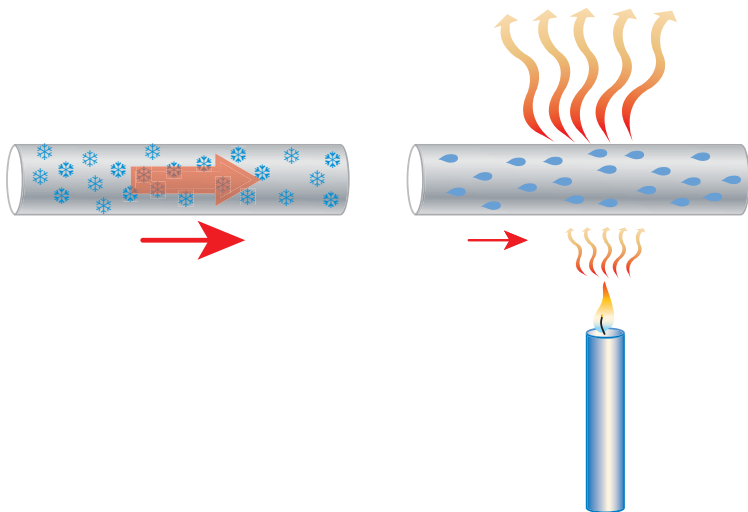
Spenningsfallet er forskjellen mellom spenning inn ($U = 230\text{ V}$) og spenningen ved belastning ($U_b = 221,04\text{ V}$)



$$R_l = \frac{\rho \cdot l \cdot \sqrt{3}}{A}$$

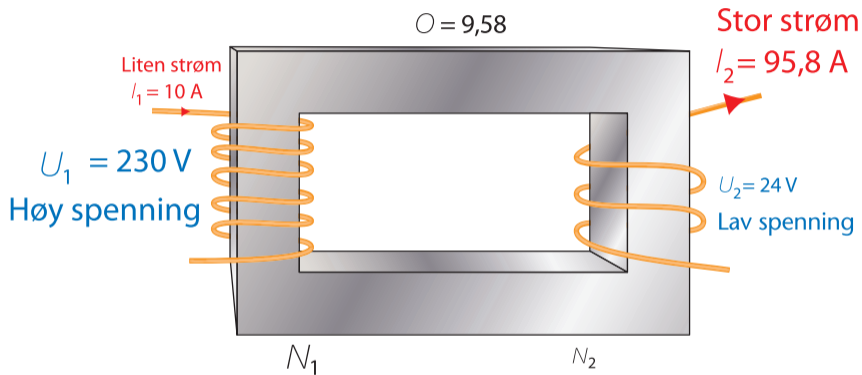
Figur 17.20

Lederresistans i en trefasekabel



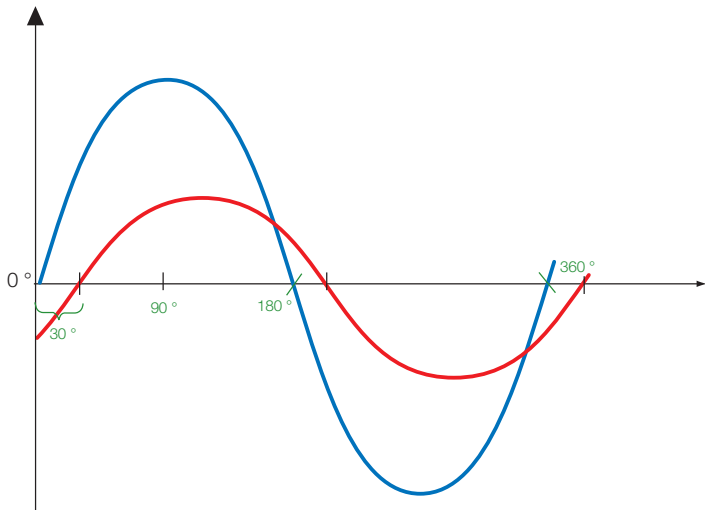
Figur 17.21

En kald kabel leder strøm lettere enn en varm kabel



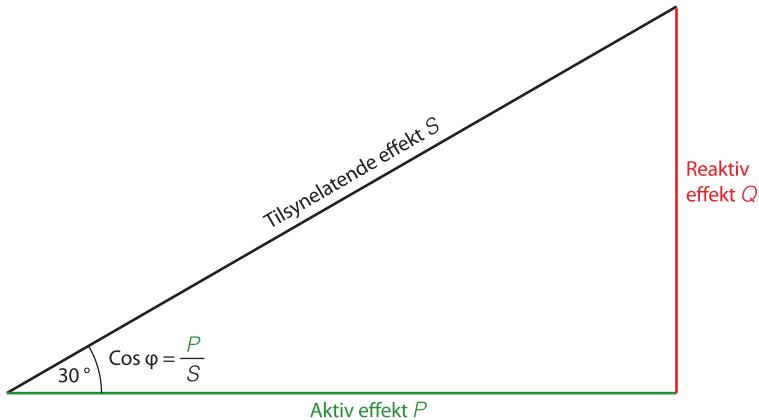
Figur 17.22

En trafo med liten I_1 og stor I_2



Figur 17.24

Spending og strøm med 30° faseforskyvning



Figur 17.25
Trekant med P , S og $Q + \cos \varphi$