

Elettronica-3



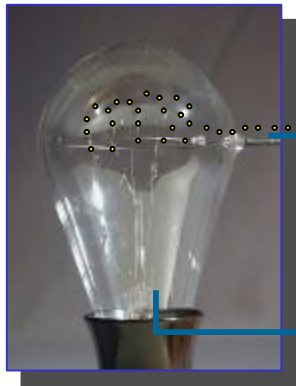
2004



Corso di Elettronica

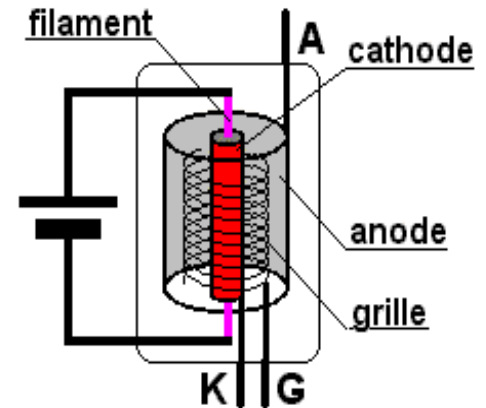
Organizzato dall'associazione no-profit *Agorà* – Lesina (FG)

Lezione valvole n° 1



Un filamento reso incandescente dalla corrente emette elettroni (emissione termoionica). Questi possono essere “raccolti” da una placca collegata al positivo di una batteria, creando, così, un flusso di corrente nel circuito della placca (detta anche anodo).

Fig.1



Anodo

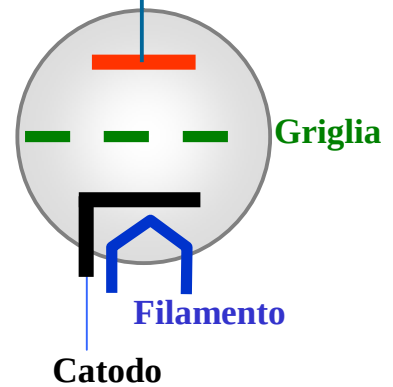


Fig.2

Circuito di funzionamento di un triodo.

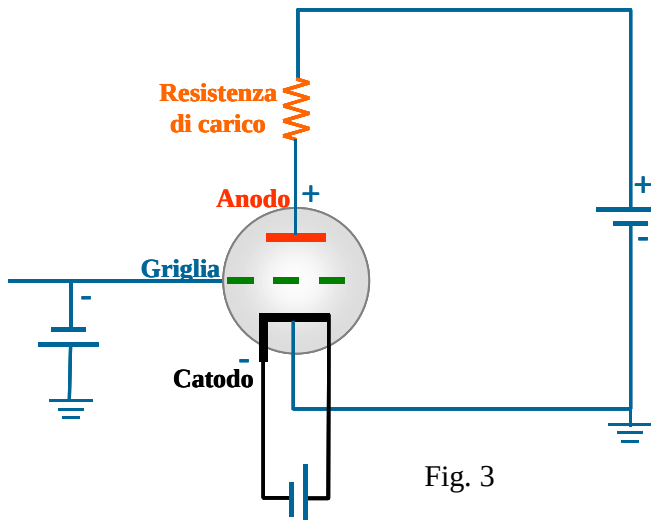
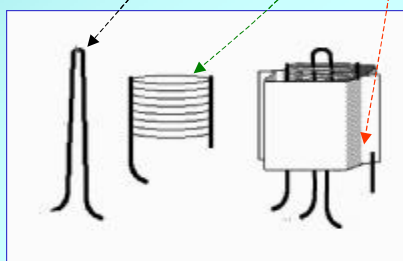
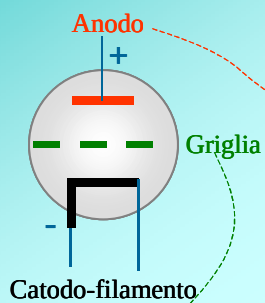


Fig. 3

Triodo

a riscaldamento diretto (DHT)



a riscaldamento indiretto (IDHT)

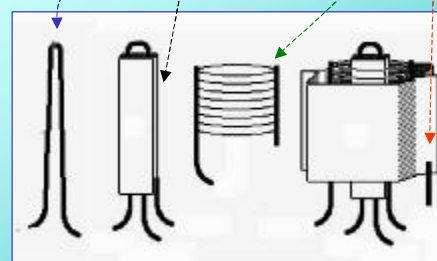
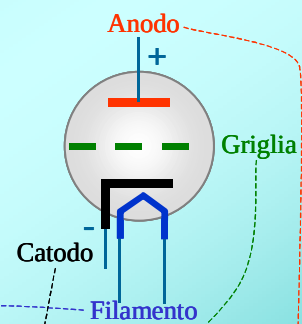
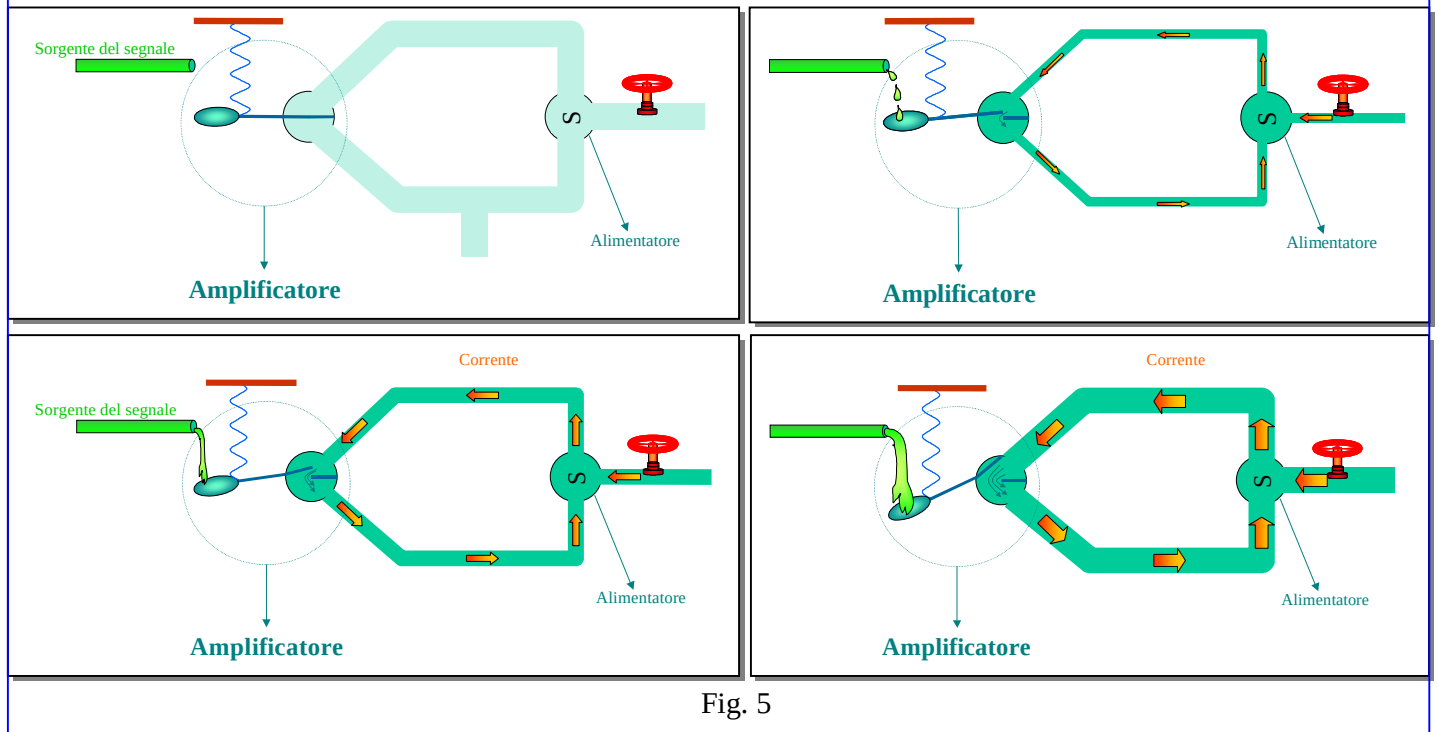


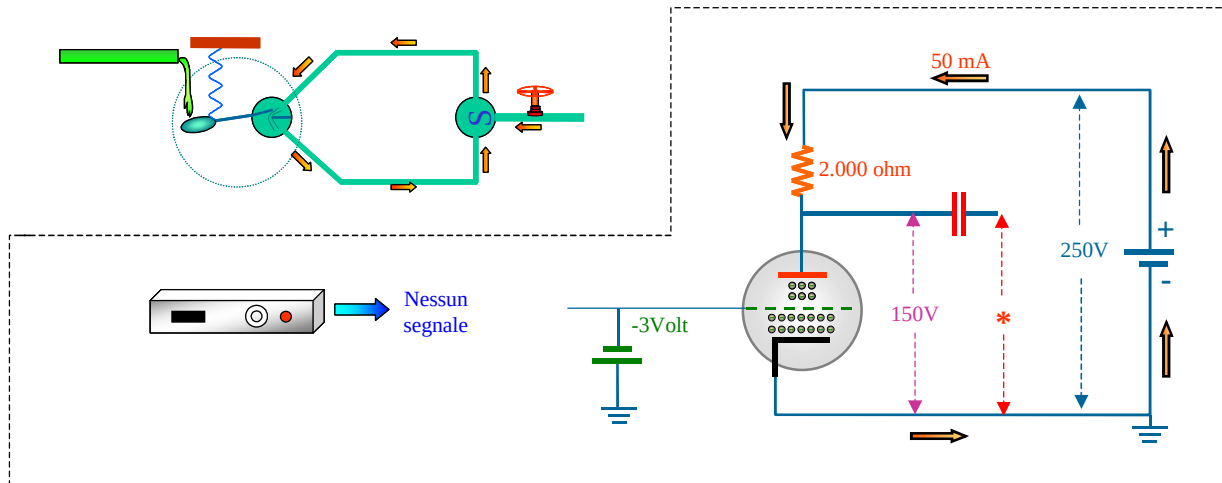
Fig.4

Principio di funzionamento di un amplificatore



Valvola in condizioni di riposo

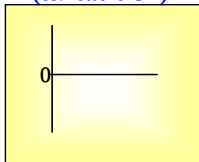
Sorgente di segnale = 0Volt Tensione di griglia= -3Volt



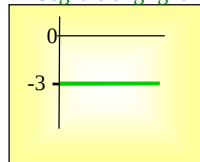
Caduta di tensione: $R=V/I$ à $V=R*I$ à $V=2000*0,050=100V$

Tensione anodica: $250-100=150V$

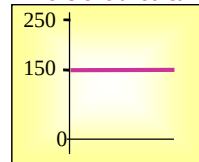
Segnale d'ingresso
(es. lettore CD)



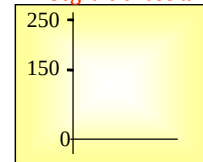
Segnale di griglia



Tensione anodica

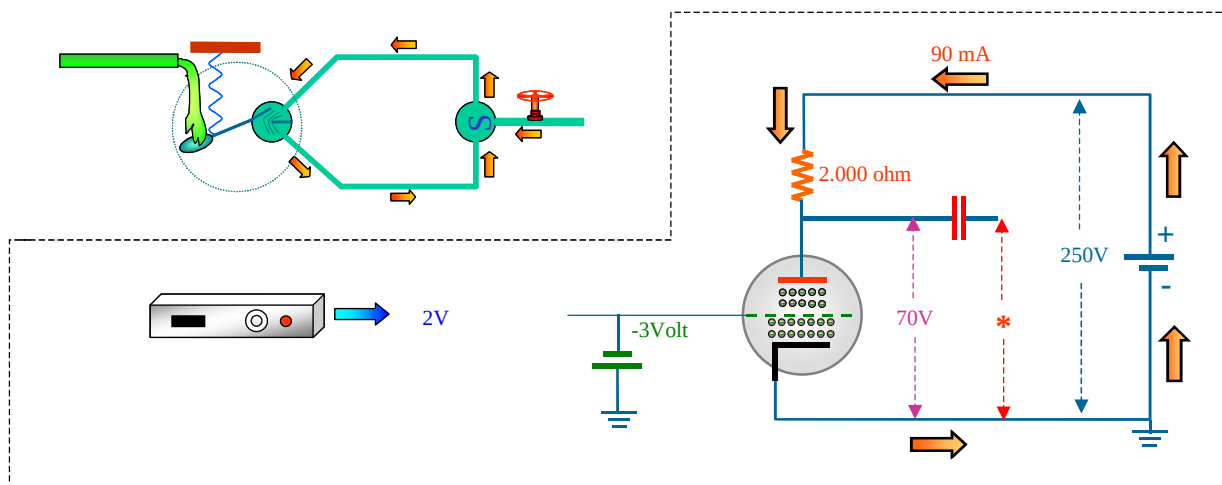


* Segnale di uscita



Valvola con segnale di ingresso

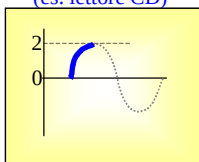
Sorgente di segnale = +2Volt Tensione di griglia= -3Volt



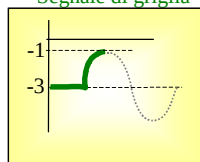
Caduta di tensione: $R=V/I$ à $V=R*I$ à $V=2000*0,090=180V$

Tensione anodica: $250-180=70V$

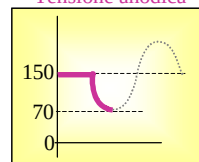
Segnale d'ingresso
(es. lettore CD)



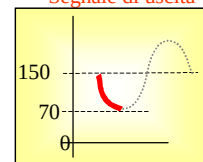
Segnale di griglia



Tensione anodica

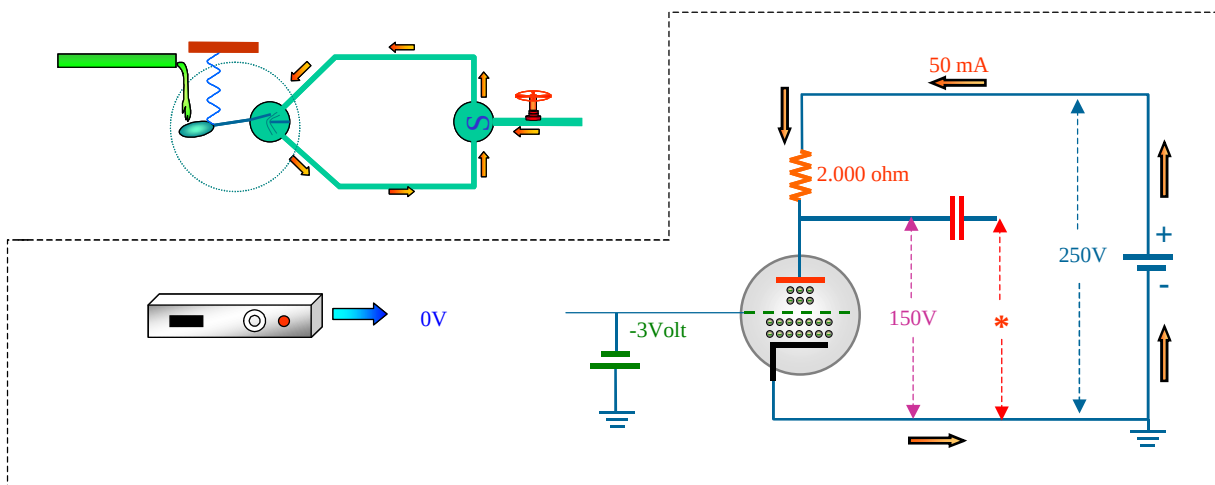


* Segnale di uscita



Valvola con segnale di ingresso

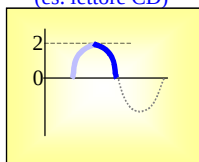
Sorgente di segnale = 0 Volt Tensione di griglia= -3Volt



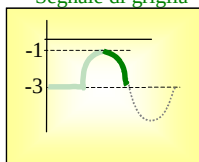
Caduta di tensione: $R=V/I$ à $V=R*I$ à $V=2000*0,050=100V$

Tensione anodica: $250-100=150V$

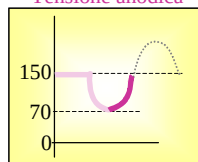
Segnale d'ingresso
(es. lettore CD)



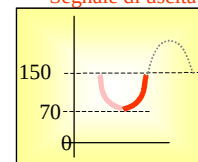
Segnale di griglia



Tensione anodica

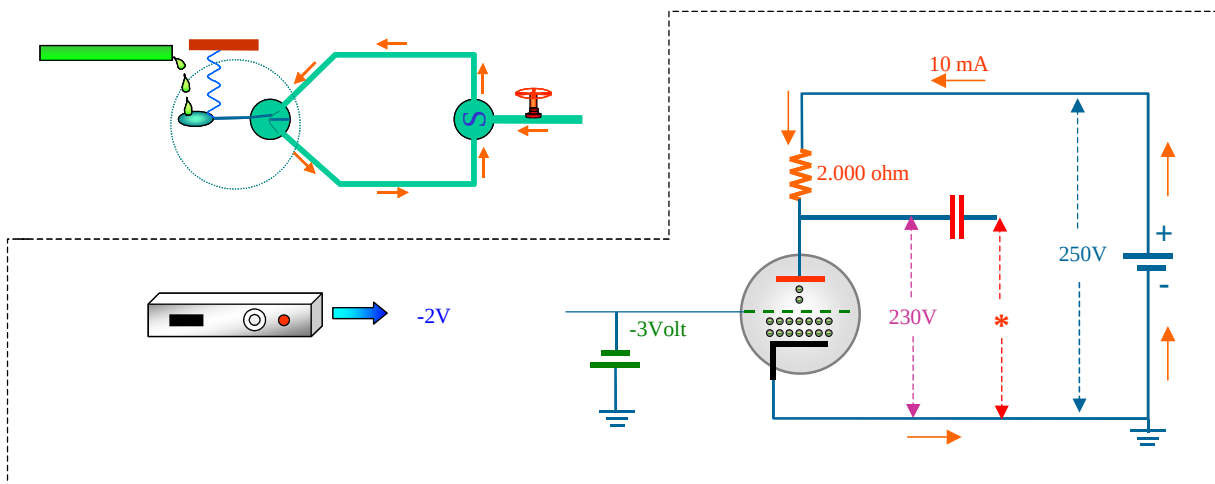


* Segnale di uscita



Valvola con segnale di ingresso

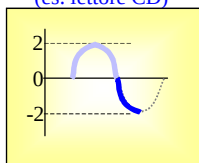
Sorgente di segnale = -2 Volt Tensione di griglia= -3Volt



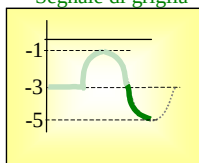
Caduta di tensione: $R=V/I$ à $V=R*I$ à $V=2000*0,010=20V$

Tensione anodica: $250-20=230V$

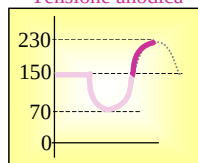
Segnale d'ingresso
(es. lettore CD)



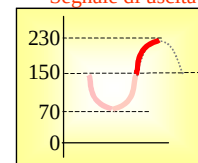
Segnale di griglia



Tensione anodica

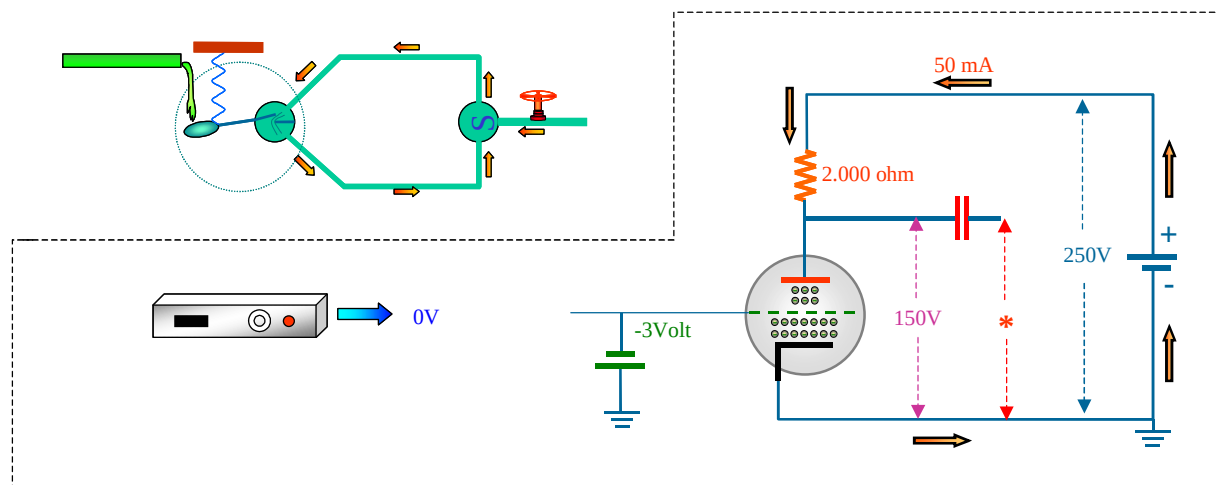


* Segnale di uscita



Valvola con segnale di ingresso

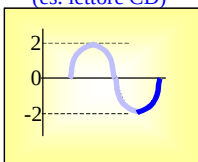
Sorgente di segnale = 0 Volt Tensione di griglia= -3Volt



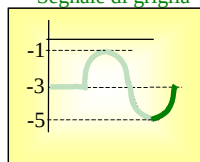
Caduta di tensione: $R=V/I$ à $V=R*I$ à $V=2000*0,050=100V$

Tensione anodica: $250-100=150V$

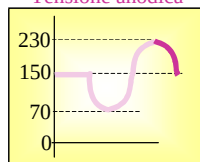
Segnale d'ingresso
(es. lettore CD)



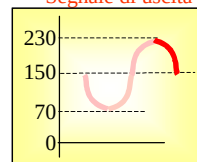
Segnale di griglia



Tensione anodica

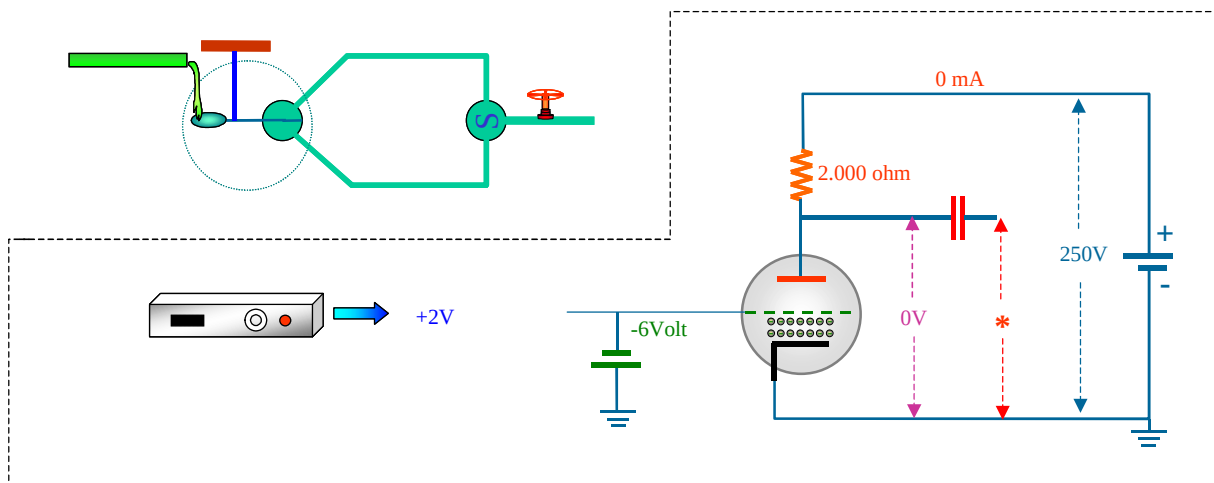


* Segnale di uscita



Valvola all'interdizione

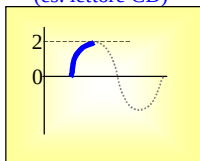
Sorgente di segnale = +2 Volt Tensione di griglia= -6Volt



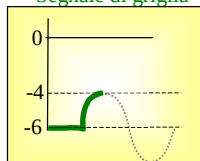
Caduta di tensione: $R=V/I$ à $V=R*I$ à $V=2000*0,0=0V$

Tensione anodica = 0V

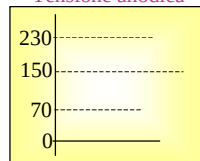
Segnale d'ingresso
(es. lettore CD)



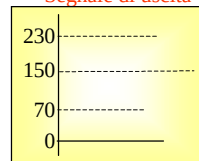
Segnale di griglia



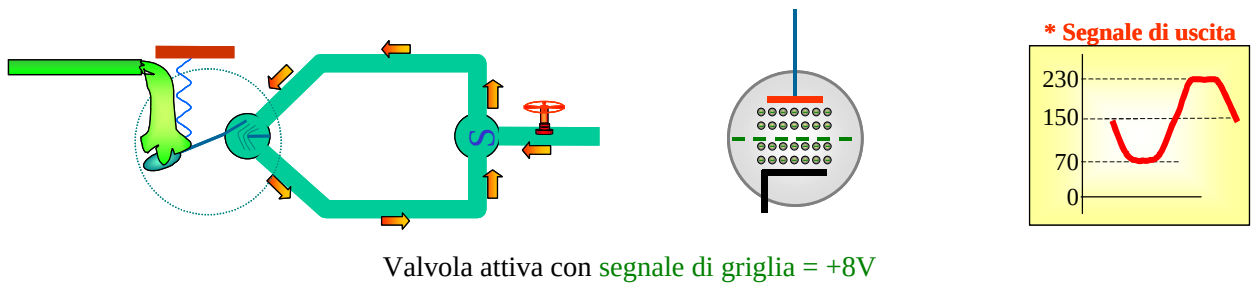
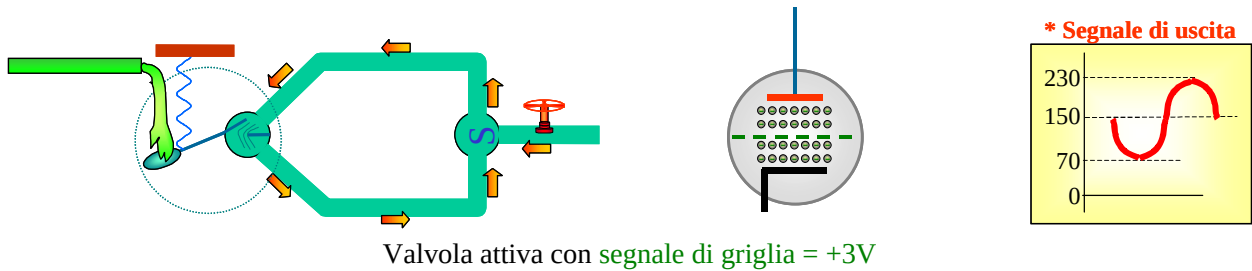
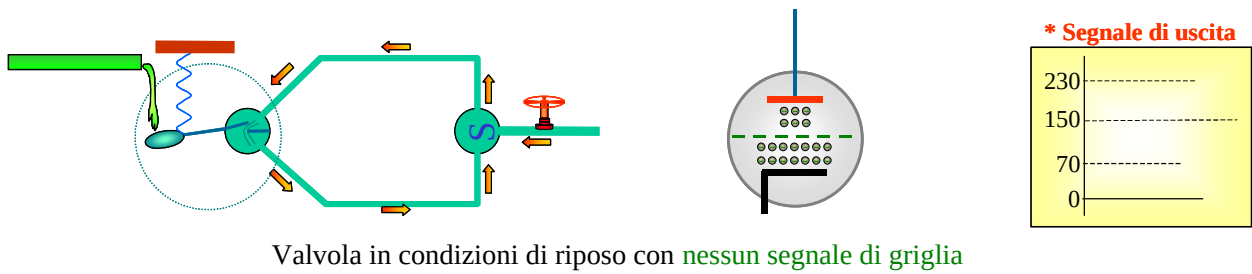
Tensione anodica



* Segnale di uscita



Fenomeno del "Clipping"



Amplificazione

Segnale d'ingresso = 4 Vpp Segnale d'uscita = 160 Vpp

Coefficiente di amplificazione = 40

