

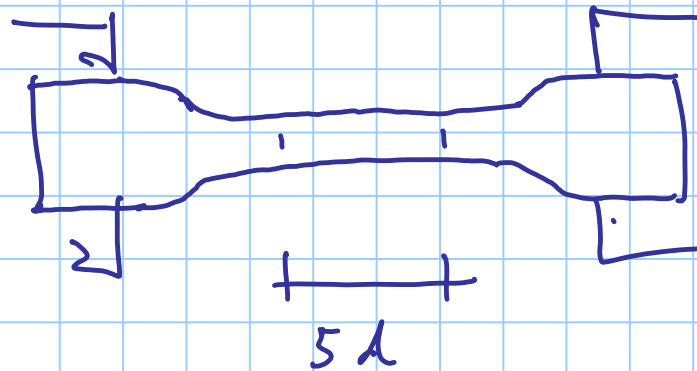
Lega Ferro
Carbonio

+ carbonio \rightarrow maggiore resistenza
minore duttilità

Lega Tensione-deformazione

$\sigma - \epsilon$

prova di trazione



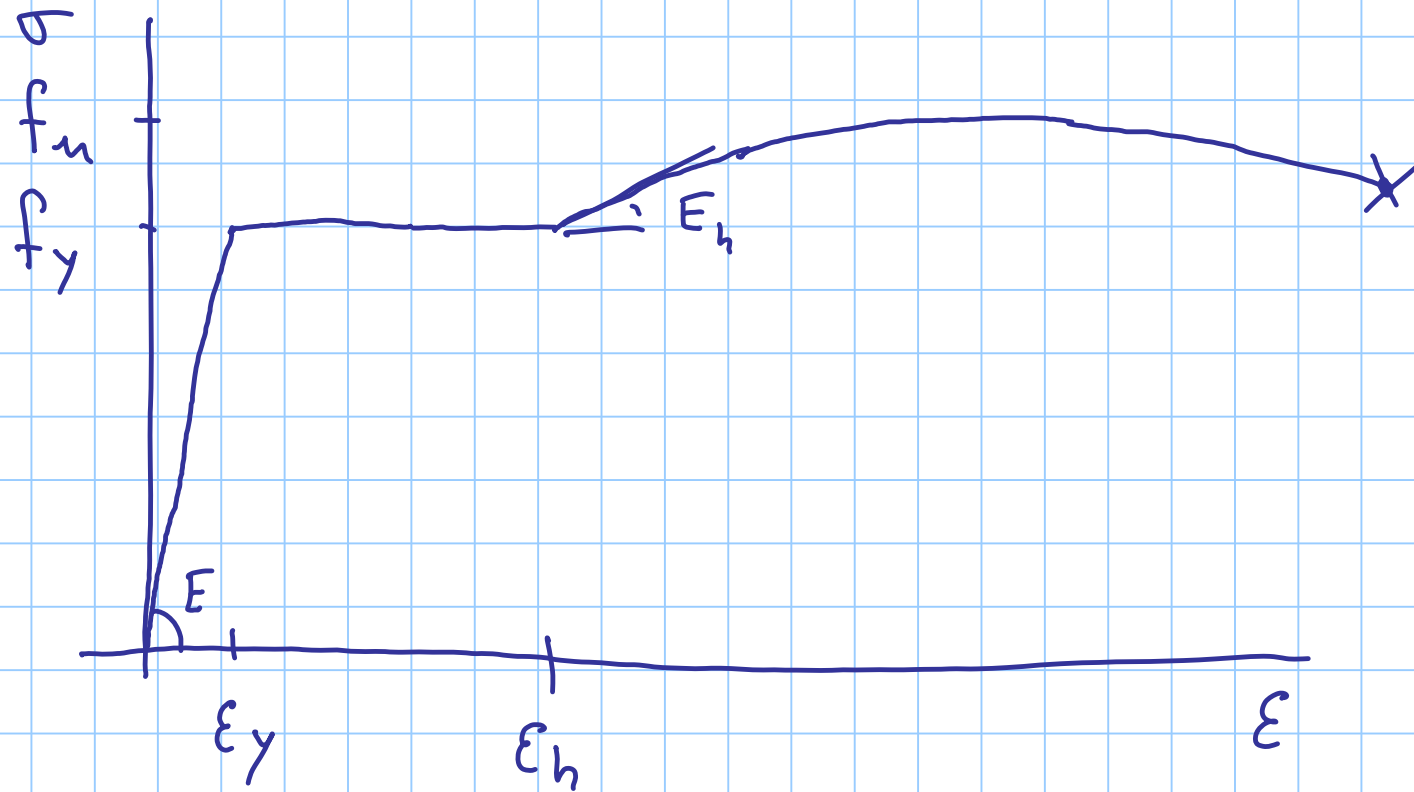
$\sigma \cdot \epsilon$

F

ΔL

$$\sigma = \frac{F}{A}$$

$$\epsilon = \frac{\Delta L}{L}$$



$$E = \frac{d\sigma}{d\varepsilon}$$

$$E = 207000 \text{ MPa}$$

$$\approx 210000 \text{ MPa}$$

yielding = chervamento

hardening = endurecimento

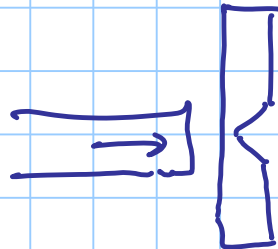
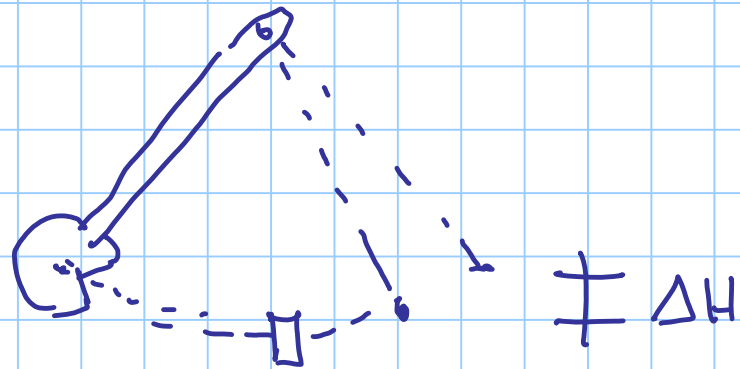
ultimate = ultimo

$$\varepsilon_h \approx 10-15 \varepsilon_y$$

RESILIENZA

energia necessaria per rompere un provino

PENDOLO DI CHARPY



Acciaio
per carpenterie
metalliche

S xx

mm

|

mm

f_y

S 235

$$f_y = 235 \text{ MPa}$$

$$t \leq 40 \text{ mm}$$

$$f_u = 360 \text{ MPa}$$

S 275

$$f_u = 430 \text{ MPa}$$

S 355

$$f_u = 510 \text{ MPa}$$

S 420 , S 460

Si usa

f_y nelle verifiche delle aste

f_u nelle verifiche puntuali (es. zona con piccoli fori)
nei collegamenti

Coefficienti parziali di sicurezza

γ_{M_n}

γ_{M_0} verifica di resistenza aste $= 1.05$ f_y / γ_{M_0}

γ_{M_1} " " stabilità aste $= 1.05$ f_y / γ_{M_1}

γ_{M_2} verifiche locali $= 1.25$ f_u / γ_{M_2}

LAMINAZIONE
A CALDO

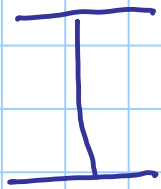
lamiere , piatti
profiliati

bi dimensionali
monodimensionali

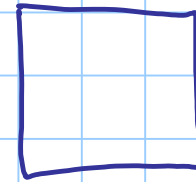
PIEGATI
A FREDDO

laminari piegati
per diventare elementi monodimensionali

SAGOMARIO



area minore



$N \rightarrow$ area (trazione)

compressione : rischio di instabilità I, p_{cr}

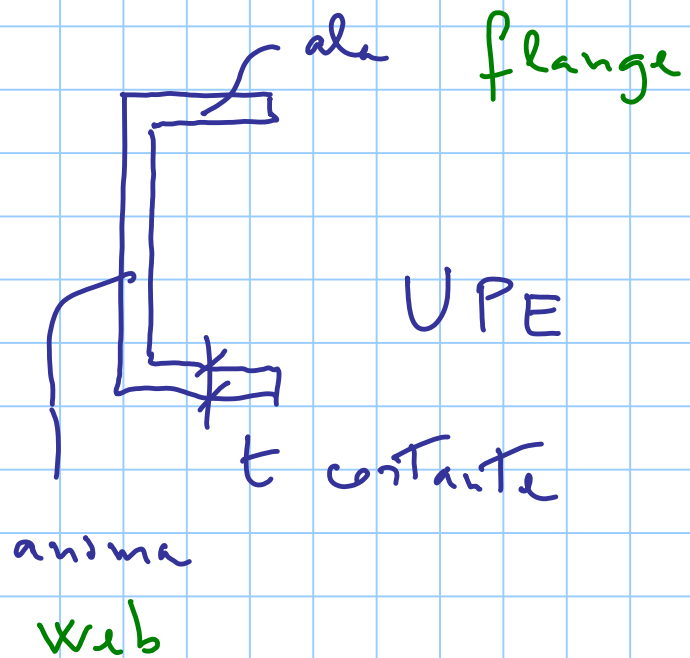
se N non è elevato,



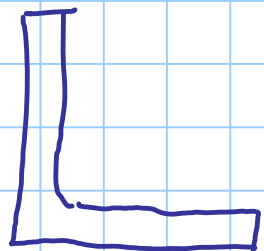
ok

attenti a compressione

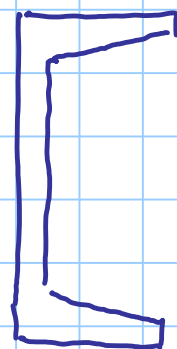
UPE, UPN



UPE 100

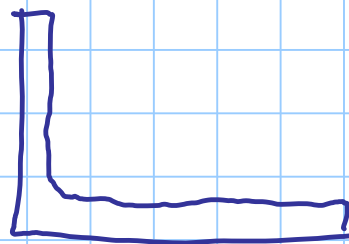


L 50 x 50 x 6



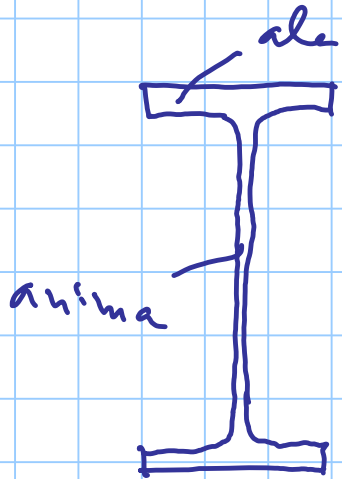
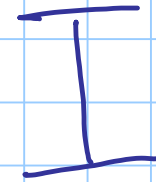
UPN

UPN 100

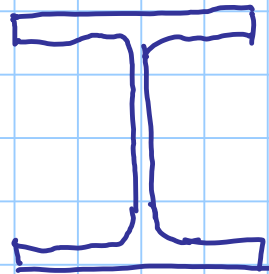


L 120 x 80 x 8

M → momento d'inertie



IPE



HE

a parità di area

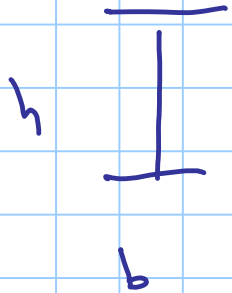
$$I_{ipe} > I_{he}$$

ok per M

per press. flessione M+N meglio HE ; idem per flessione deviate

IPE

$$h = 2b$$



IPE 200

$$h = 200 \text{ mm}$$

$$b = 100 \text{ mm}$$

IPE A

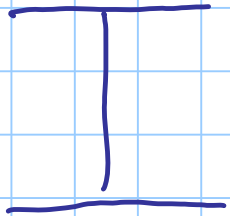
alleggeriti

IPE O

appresentati

HE

$$h = b$$



HE 200 B

b_{flange}

$$h = 200 \text{ mm}$$

$$b = 200 \text{ mm}$$

HE 200 A

allgemein

HE 200 M

präzise

pregati a face

lemiere guscate

profili principali

- copertina : in-letto

- raso tipo : calcestruzzo

