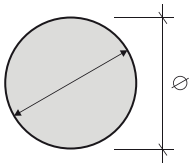
COMPUTE TONNAGE FOR PUNCHING

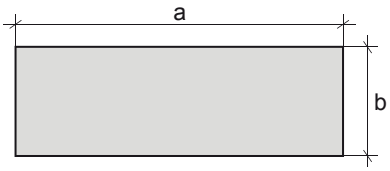
Ton = P x E x D

Ton = Required tons for punching
P= Perimeter of the hole to be done
E= Material thickness
D= Material hardness in Kg/mm ^{2}

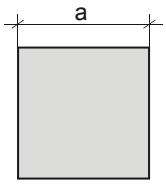
(P) PERIMETER OF MOST COMMONLY USED HOLES



P = π x Ø
π = 3,1416



P = 2 x a + 2 x b



P = 4 x a

P = (π x b) + 2 x (a – b)

(D) MATERIAL HARDNESS IN Kg/mm^2 (N/mm^2)

Aluminum	30 Kg/mm^2 (300 N/mm^2)
Brass	25 Kg/mm^2 (250 N/mm^2)
Cupper	22 Kg/mm^2 (220 N/mm^2)
Mild steel	45 Kg/mm^2 (450 N/mm^2)
Stainless steel	65 Kg/mm^2 (850 N/mm^2)

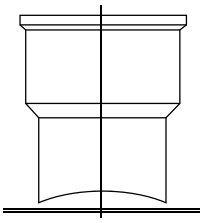
Approximate average values

EXAMPLE

Ø = Punch 18 mm
E = 10 mm
D = Mild steel 45 Kg/mm ^{2}

P = π x Ø
P = 3,1416 x 18
P = 56,54 mm
Ton = P x E x D /1000
Ton = 56,54 x 10 x 45 / 1000
Ton = 25,44 tons

IMPORTANT



- In case the machine tonnage does not allow making the hole, there is the possibility of buying sloped cut punches. Resistence of material while punching is much lower.

- The diameter of the hole to be made must be always bigger than the material thickness to avoid any possible breakages. E.g.: With a 10mm punch we cannot punch a 15mm thickness sheet, on the other hand we could punch 10mm metal sheet with a 15mm diam.