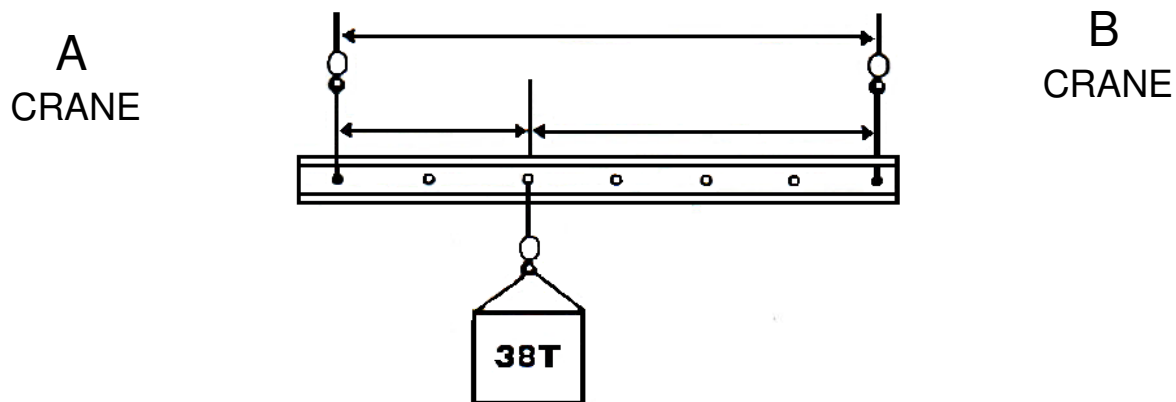


## Determine Lifting Points with an Equalising Beam



A load is lifted using crane (A) with a known capacity of 31,200 kg and equalising beam (tare weight 1000 kg).

The beam has lifting points at each metre. Load to be lifted is 38,000 kg.

Crane (A) is attached at 0m point.

Crane (B), which is unknown, is attached to the beam at the **6m-lift point**.

Find (A) the point at which the load is to be attached to the equalising beam so that each crane will share the load.

Step (1) Total load to be lifted = Load + beam weight x 1.2  
 (Multiplying by 1.2 adds 20%, which is a safety factor)

$$= 38,000 \text{ kg} + 1000 \times 1.2 = 46,800 \text{ kg.}$$

Step (2) Capacity of crane (A) (known) x distance to crane (B)  
 Attachment point divided by total weight to be lifted

$$= \frac{31,200 \text{ kg} \times 6}{46,800} = 187200$$

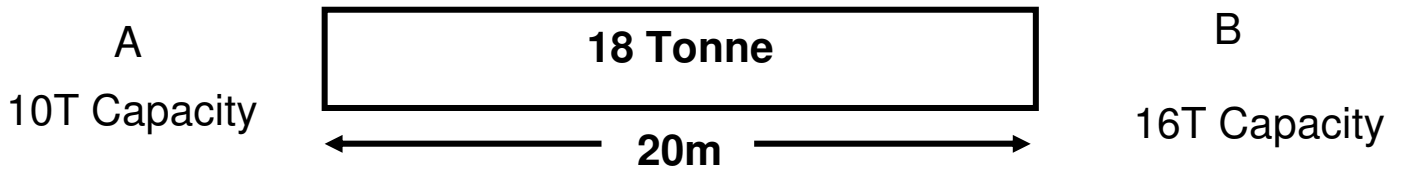
= 4m (distance from crane (B) which leaves 2m to crane (A))

Capacity of crane (B) = Total load – capacity crane A

$$= 46,800 \text{ kg} - 31,200 \text{ kg}$$

$$= 15,600 \text{ kg Minimum capacity}$$

**Alternative method to determine sling points using unequal cranes.  
Both crane Capacities are known**



**Step (1) Add both cranes  $10 + 16 = 26$**

**Step (2) Beam length divided by 26 ( $20 \div 26 = .769$ )**

**Step (3) Crane A  $10t \times .769 = 7.69$  metres length to carry  
Crane B  $16t \times .769 = 12.304$  metres length to carry**

**Step (4) A 7.69 divided by 2 = 3.845m sling point  
B 12.304 divided by 2 = 6.152m sling point**

**Load share: Load 18 Tonne Length 20 metres  $18 \div 20 = 0.9t$  per metre**

**Crane A Carries  $7.69 \times .9t = 6.921$  Tonne**

**Crane B Carries  $12.304 \times .9t = 11.073$  Tonne**