

Series 020 Thru-Hole Hydraulic Rams Technical Information

Calculation of Forces Using Straps and Levers

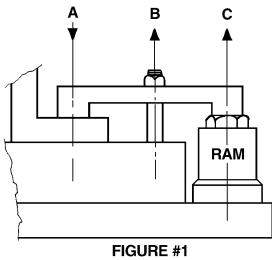


FIGURE #1

**Figure #1**

When the distance AB is equal to the distance BC the force upward from Model 020-011-011DE Ram "C" is equal to the downward force "A" on the part.

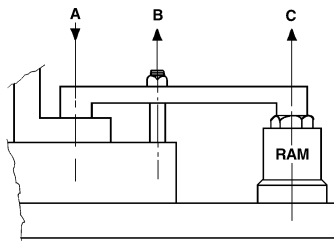


FIGURE #2

**Figure #2**

The downward force "A" is equal to the upward force "C" times a ratio of the distance BC:AB.

**Example:**

AB = 2", BC = 4", Force "C" = 1,000 lbs.

$$\text{Force "A"} = \text{Force "C"} \times \frac{BC}{AB}$$

$$\text{"A"} = 1,000 \text{ lbs.} \times \frac{4}{2}$$

$$\text{"A"} = 2,000 \text{ lbs.}$$

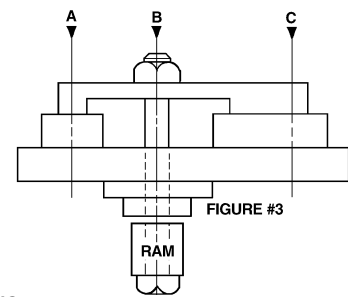


FIGURE #3

**Figure #3**

When Force "B" from Model 020-011-011DE Hollow Bore is divided between "A" & "C", the forces at "A" & "C" are in inverse ratio to the distance AB & BC respectively.

$$\text{Force "A"} = \text{Force "B"} \times \frac{BC}{AB}$$

$$\text{Force "C"} = \text{Force "B"} \times \frac{AB}{AC}$$

**Example:**

AB = 2", BC = 4", Force "B" = 1,000 lbs.

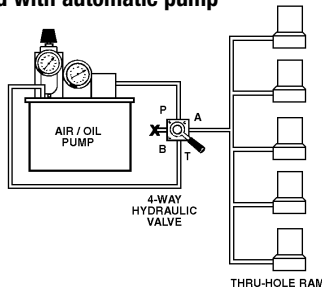
$$\text{Force "A"} = 1,000 \text{ lbs.} \times \frac{4}{6} = 666.7 \text{ lbs.}$$

$$\text{Force "C"} = 1,000 \text{ lbs.} \times \frac{2}{6} = 333.3 \text{ lbs.}$$

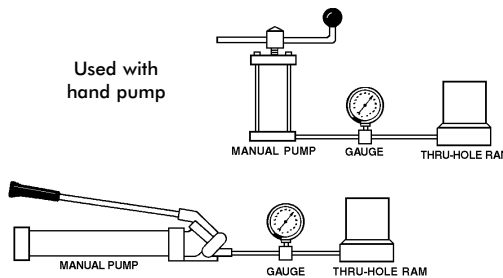
Power Sources

Thru-hole Rams can be powered by automatic pumps, hand pumps, boosters or existing machine hydraulics.

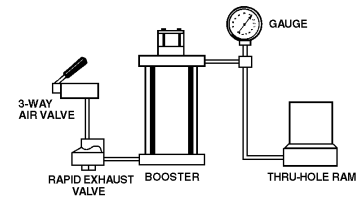
Used with automatic pump



Used with hand pump



Used with booster



Multiple Uses

Thru-hole Rams can be used to push or pull depending on the position of the ram.

