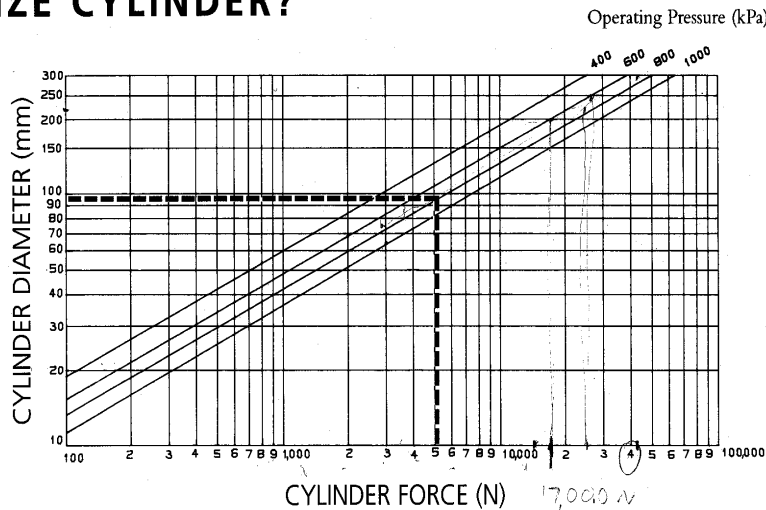


CYLINDER SIZES AND FORCES

WHAT SIZE CYLINDER?

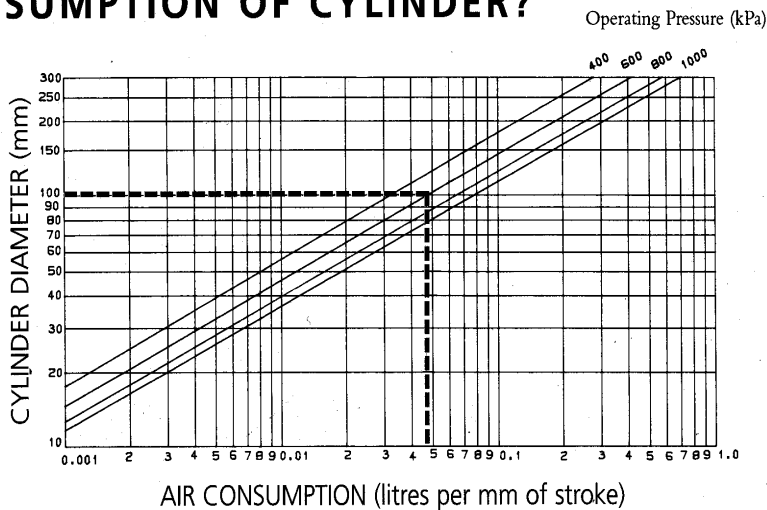


EXAMPLE

A cylinder, on outstroke, is required to apply 4,000 newtons of force at an operating pressure of 600kPa. Go up vertically from 4,000 N until intersection with the 600kPa operating pressure line, then go across horizontally to the left, until intersection with the cylinder diameter axis. Go to next cylinder size up from this intersection point i.e. a 100mm diameter cylinder is required.

- N.B. • Friction of approx. 10% has already been allowed for in the graph.
 • When the cylinder retracts, it will apply less force (approx. 10%) because the piston rod reduces the effective piston area.

AIR CONSUMPTION OF CYLINDER?



EXAMPLE

It is required to find the air consumption of a 100mm dia cylinder, 300mm stroke and operating at 600kPa. Go across horizontally from 100mm diameter until intersection with the 600kPa operating pressure line, then go vertically down until intersection with the air consumption axis at .048 l/mm of stroke. As the cylinder stroke is 300mm, then air consumption on the outward stroke of the cylinder will be .048 l/mm x 300mm = 14.4 litres.

When the cylinder retracts, it will require less air (approx. 10%) because the piston rod reduces the effective piston area. Thus air consumption on the return stroke will be approx. 13 litres. Total air consumption for the double stroke is then approx. 27.4 litres.