



## ADVANTAGES OF HIDRACAR OLEO-PNEUMATIC SPRINGS

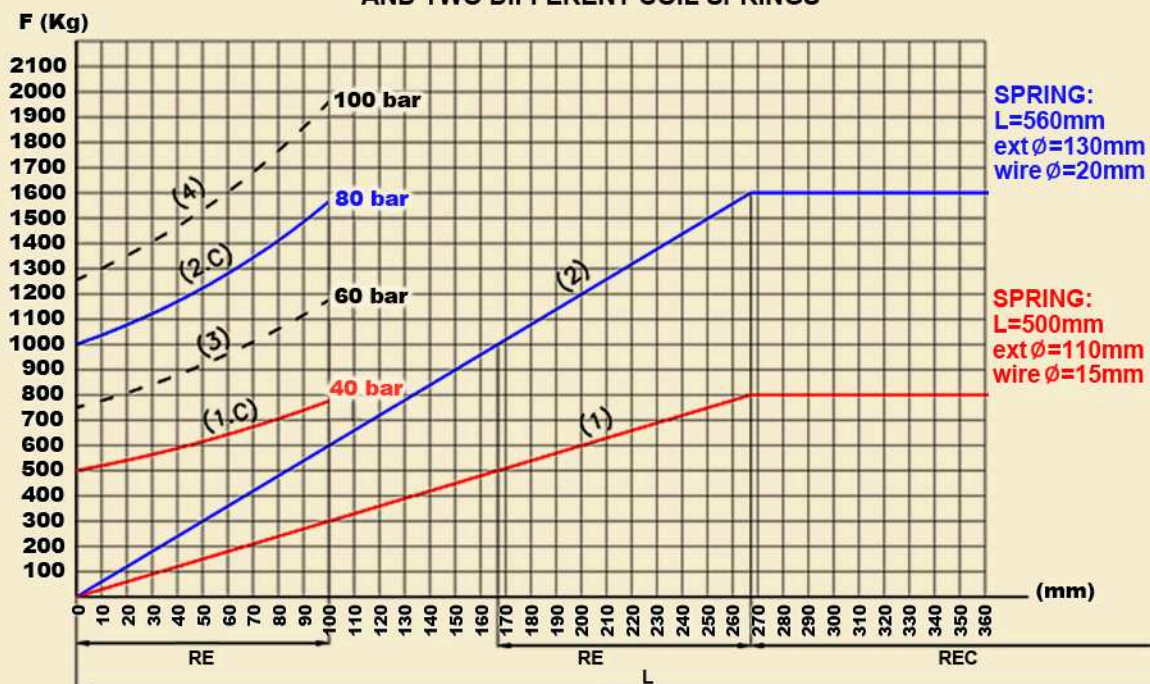
### Compared to conventional coil springs:

- Requires less space to install.
- No need for a spring-compressing device to provide the initial force.
- If you don't know exactly the initial force that must be applied it is not necessary to change the spring for a stronger one; you just increase the accumulator gas pre-charge.

### Compared to springs that operate only with gas:

- Shorter and heavier-duty.
- There is no way the gas can leak through the rod seals, as those are always lubricated in **HIDRACAR S.A.** oleo-pneumatic springs and the gas is contained inside the bladder of the accumulator.
- No rebound effect is produced, unlike with gas-only cylinders and coil springs.

COMPARATIVE GRAPHIC BETWEEN A HIDRACAR OLEO-PNEUMATIC SPRING  
AND TWO DIFFERENT COIL SPRINGS



RE = WORK STROKE OF OLEO-PNEUMATIC AND COIL SPRINGS  
REC = LENGTH OF THE COIL SPRING COMPRESSED AT Fmax  
L = TOTAL LENGTH OF THE COIL SPRING

### Explanation of the graphic:

The red line (1) corresponds to a coil spring that applies an initial force of 200 Kg and a final force of 500 Kg with a 100 mm stroke.

The blue line (2) corresponds to another coil spring applying an initial force of 1,000 Kg and a final force of 1,600 Kg.

Curves (1C) and (2C) are the equivalent for a **HIDRACAR S.A.** CS.SE.D40x110+U003 oleo-pneumatic spring at the same stroke and forces applied. Only the gas pressure of the accumulator has been modified.

The other curves (3) and (4) are the corresponding to the same oleo-pneumatic spring, but with different gas pre-charges.