

# Schaffer Diaphragm Gauge

## Flange Connection

Model P91CFN

When a gauge suffers from the effects of vibration or pulsations the pointer vibrates very rapidly making it very difficult to make accurate stable readings. The main cause of this effect is installing a gauge close to a pumped or any process that vibrates in normal operating conditions.

The key reason for fitting either a viscous damped Movement (VDM) or filling a case with glycerine is to overcome the effects of vibration and pulsation. It must be stated, however, that it does NOT replace a check screw or a pressure snubber for major pressure fluctuations or vibrations that are continuous and problematic, both of which can be supplied fitted into the inlet of the gauge



### Glycerine Filling

A simple damping method is to fill the case with a viscous fluid such as glycerine to restrict the pointer from rapidly performing small fluctuating resulting in a potentially inaccurate readings. One of the key problems with is that whilst the pointer is being restricted other parts of the gauge are still moving, hence the unit suffer internal wear that may cause a premature failure of the instrument

### Disadvantages of Glycerine Filled Cases

The action of dragging the pointer through the viscous fluids adds a load to the pointer that can result in accuracy errors. The unit weight is effectively doubled, that puts extra strain on the installation, particularly on small schedule pipes. Units are very messy during recalibration whereby they have to be emptied and there is a chance that fluid can leak out that then could cause a Health & Safety hazard.

### Benefits of Viscous Damped Movements

Damping effect is applied to the mechanism at two key operational points. No loss or degradation of accuracy. Easier to recalibrate with no messy fluids to remove/replace. Unit weight is half that of a filled gauge Increased life cycle - Budenberg guarantee a unit fitted with a damped movement for 1,000,000 cycles where the guarantee for filled gauges is only 200,000

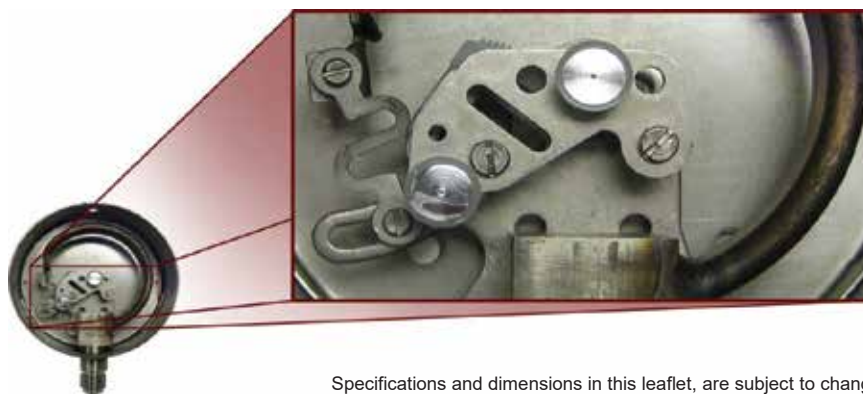
### Double Viscous Damped Movements

These movements have been around for quite a number of years but only in the past 10 years has the design been developed and improved to meet the harsher demands, particularly in the off-shore oil and gas markets.

They are very similar to the standard gauge movements but they provide direct damping onto the two key elements of the movement via silicon oil filled dashpots. These dashpots are located on the pinion and the quadrant arm and comprise of small white cylindrical containers filled with a viscous silicon oil and internal paddle wheels creating resistance for the pointer from small fluctuations of pressure or vibration just as glycerine filling would. Furthermore, the quadrant nylon teeth providing a smooth action and preventing metal to metal wear between the pinion and the teeth.

### Available for the following:

Standard Gauges from 63mm through to 250mm  
Schaffer Diaphragm seal gauges  
Chemical Seal Gauges  
Temperature gauges - both Mercury & Gas Filled



Specifications and dimensions in this leaflet, are subject to change without prior notice.

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