



## Pressure Measurement in Refrigeration Engineering



### Application:

## Bourdon tube pressure gauges for pressure measurement in large-scale refrigeration plants

for manufacturers of large-scale refrigeration plants



A refrigeration plant is for refrigeration. This means that via a process, heat is withdrawn at a point that is to be refrigerated, and emitted to the atmosphere at another point. This is a complex cycle, because all components of the refrigeration plant have to be synchronised. The reliability of such a system must be guaranteed, as the leakage of refrigerant can have a negative impact on the environment. Therefore, pressure measuring instruments also have to meet high demands.

### The problem:

The pressure test in a refrigeration plant is intended to ensure that the system withstands the operational pressure loads. It is important that the system is leak-tight and that no refrigerant can escape. On the one hand, leaks cause a drop in the refrigerating capacity of the plant and on the other hand they can cause environmental damage, as refrigerants contain fluorine or chlorine. In order to prevent such "dangers", the instruments have to withstand the strong vibrations of the system. Furthermore, the pulsation of the medium must be reduced.

### Our solution:

Our instruments are filled with glycerin. This dampens strong vibrations. Refrigeration pumps cause pulsations (of the medium) in the tubing and thus dynamic loads on the pressure gauges. A restrictor screw with a small orifice in the inlet port of the pressure gauge "calms" the pulsations and thus the pointer movement. This significantly extends the service life of the pressure gauges.

For this application one pressure gauge is used for the low-pressure side (blue case) and one pressure gauge is used for the high-pressure side (red case).

### For the right temperature: RChgG 80 – 1

- ◆ Low-pressure side: case blue
- ◆ Pressure range\*: –1 / +16 bar
- ◆ With temperature scale acc. to refrigerant (e.g.: R 134 A, R 404 A, R 407 C, R 507, R 744)
- ◆ Process connection: 7/16" – 20 UNF bottom
- ◆ Restrictor screw Ms with orifice 0.3 mm
- ◆ Mounting of the instrument: 2 blind rivet nuts M4, 10 mm deep, 60 mm distance in back of case



- ◆ High-pressure side: case red
- ◆ Pressure range\*: –1 / +28 bar anything else the same as low-pressure



\* other pressure ranges upon request

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