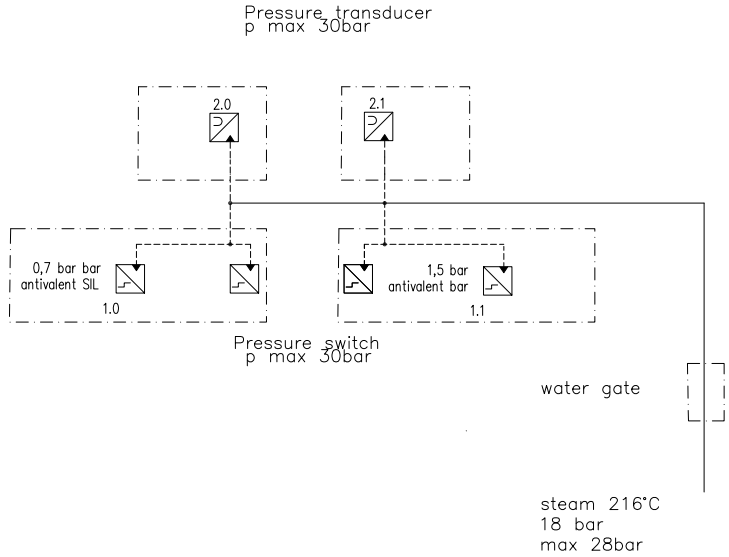
Tyre vulcanising sensors

Tyre vulcanising presses (tyre curers) must be constructed in accordance with **EN 16474.**

The vulcanisation of tyres is controlled by temperature and time. The energy required for vulcanisation is made available principally by regulated saturated steam.

Pressure control of heating system in tire curing valcanisation process



Pressure sensors in the tyre curer ensure that

1. At the start of the vulcanisation cycle, the unvulcanised tyre is pre-positioned in the tyre curer at relatively small but precisely controlled saturated steam pressures (shaping control, inflation).
2. The tyre is vulcanised at the correct temperature, since with saturated steam, pressure is related to temperature (process control).
3. Due to safety reasons, at the end of the vulcanisation cycle the press will open only when the internal pressure of the curer has fallen to a pre-defined low pressure.

Although to some extent relatively low pressures are measured and controlled, the sensors have a high pressure resistance (max. 40 bar) because during the vulcanisation cycle they are subject to the full system pressure.

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Shaping control

It is during the shaping/inflation of the tyre that the pressure sensors must exhibit, besides high resolution and high pressure resistance, also a small time constant since the shaping process is highly dynamic.

Parker pressure sensors therefore offer:

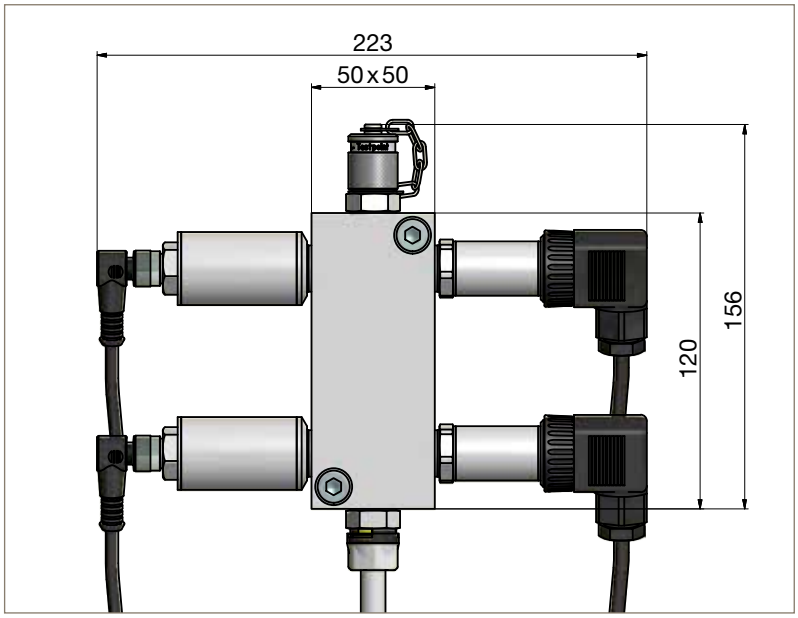
- High resolution pressure range from -1…3 bar (Resolution 10 mbar)
- High pressure resistance (P max = 30 bar)
- High temperature resistance (T max = 125 °C)
- Time-related resolution < 5 ms

Process control

The vulcanisation temperature is regulated by the saturated steam pressure. So the accuracy of the pressure measurement transducer materially determines the quality of the tyre.

Parker pressure sensors therefore offer:

- High resolution in the pressure range from -1 – 30 bar (75 mbar)
- High pressure resistance (P max = 30 bar)
- High temperature resistance (Tmax = 125 °C)
- Time-related resolution < 5 ms



For Safety

Before opening the curer at the end of the heating cycle, there must be certainty that the internal pressure is lower than the pre-defined minimum pressure (typically 0.7/1.5 bar).
In general, mechanical pressure switches cannot fulfill these high **(PL_d)** demands.

Parker pressure switches therefore offer:

- Antivalent switching outputs
- Fixed set switching points
- High switching point accuracy
- High pressure resistance
- PL_d/SIL

The Complete Solution

Not only the safety-relevant pressure switches, but also the precise process-monitoring pressure transducers are integrated in one block.

This block offers:

- Compact arrangement of the sensors
- Venting
- Water seal

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