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## The ATLAS patch panel 01 (PP1): engineering aspects and cooling system

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PP1 is one of the most critical components in the ATLAS pixel detector that has to guarantee a dew point temperature in the detector volume less than  $-60^{\circ}\text{C}$ , close the Faraday cage, allow the passage of more than 14k links and 14 cooling lines. New rubber like sealing materials have been qualified up to 6 MGy and data cable feedthroughs have been developed to seal the data links. The PP1 mechanical design and manufacturing as well as the gasket qualification and data feedthrough design and prototyping are discussed. The sub-detectors have to be cooled down to  $-35^{\circ}\text{C}$  using biphasic  $\text{CO}_2$  refrigerant. The PP1 cooling system is designed to connect the main cooling system to the pipes of the individual sub-detectors. The design of the cooling distribution for the 3 sub-detectors and also the description of individual components will be discussed.

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