Cryogenic relief device sizing based on existing norms

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The sizing of cryogenic relief devices for applications below 75 K is typically based on the scenario for insulation vacuum loss and subsequent air condensation on cold surfaces. Large heat fluxes and density changes that go along with this event must be considered in the sizing of the appropriate relief devices.
DIN EN ISO 21013 adresses these issues from a normative standpoint. However, the sizing of relief devices for complex cryogenic apparatus cannot be performed directly based on the rules given in DIN EN ISO 21013. We highlight these issues and show how safety devices can be sized based on DIN EN ISO 21013, by a suitable extension of the rules given in the norm.