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(54) Title: POLYMERISATION REACTOR

(57) Abstract: A tubular reactor for use in polymerisation reactions is described, having a design pressure P_R of 40-65 barg, at least a portion of which is oriented vertically and at least part of which vertical portion is surrounded by a concentric jacket for the passage of cooling fluid, wherein the design pressure in barg of the jacket P_J is less than $0.0018.P_R^{225}$. Another aspect of the invention concerns a tubular reactor for use in polymerisation reactions having a design pressure P_R of 40-65 barg, at least a portion of which is oriented vertically and at least part of which vertical portion is surrounded by a concentric jacket for the passage of cooling fluid, wherein the actual thickness of the reactor wall is either no more than 2mm greater and/or no more than 10% greater than the minimum wall thickness required to withstand the design pressure P_R as calculated according to the ASME Boiler and Pressure Vessel code.