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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **大锥角带加强圈锥形封头内压校核** | | | | 计算单位 |  | | | |
| 计算所依据的标准 | | | | | **HG/T 20582-2011** | | | |
| **计 算 条 件** | | | | | **简 图** | | | |
| 设计压力, Pd | | | MPa | **$$001** | $07  $06  $13  $12  ti  ti  $19  $18  $tit | | | |
| 设计温度, t | | | ℃ | **$$002** |
| 介质静压力, Ps | | | MPa | **$$003** |
| 筒 体 | 材料标准号 | | **$$004** | |
| 材料牌号/名称 | | **$$005** | |
| 内直径, Dsi | | mm | **$$006** |
| 名义厚度, δsn | | mm | **$$007** |
| 焊接接头系数, Φs | | / | **$$008** |
| 腐蚀裕量, Cs2 | | mm | **$$009** |
| 封 头 | 材料标准号 | | **$$010** | |
| 材料牌号/名称 | | **$$011** | |
| 半顶角, α | | ° | **$$012** |
| 名义厚度, δcn | | mm | **$$013** |
| 腐蚀裕量, Cc2 | | mm | **$$014** |
| 焊接接头系数, Φc | | / | **$$015** |
| 加 强 圈 | 材料标准号 | | **$$016** | |
| 材料牌号/名称 | | **$$017** | |
| 加强圈名义厚度, δrn | | mm | **$$018** |
| 加强圈高度, Hrn | | mm | **$$019** |
| 腐蚀裕量(单面), Cr2 | | mm | **$$020** |
| 压力试验类型 | | | **气压试验** | |
| **材 料 特 性** | | | | | | | | |
| 筒 体 | 密度, ρs | | kg/m³ | **$$022** | 封 头 | 密度, ρc | kg/m³ | **$$029** |
| 材料负偏差, Cs1 | | mm | **$$023** | 材料负偏差, Cc1 | mm | **$$030** |
| 设计温度许用应力, [σ]st | | MPa | **$$024** | 设计温度许用应力, [σ]ct | MPa | **$$031** |
| 试验温度许用应力, [σ]s | | MPa | **$$025** | 试验温度许用应力, [σ]c | MPa | **$$032** |
| 试验温度下屈服点, RseL | | MPa | **$$026** | 试验温度下屈服点, RceL | MPa | **$$033** |
| 加强圈材料密度, ρr | | | kg/m³ | **$$028** | 加强圈材料负偏差, Cr1 | | mm | **$$035** |
| **过 程 参 数** | | | | | | | | |
| 计算压力, Pc | | MPa | | Pc = Pd + Ps | | | | **$$036** |
| 筒体 | 厚度附加量, Cs | | mm | Cs = Cs1 + Cs2 | | | | **$$037** |
| 有效厚度, δse | | mm |  | | | | **$$038** |
| 封头 | 厚度附加量, Cc | | mm | Cc = Cc1 + Cc2 | | | | **$$039** |
| 有效厚度, δce | | mm |  | | | | **$$040** |
| 加强圈 | 厚度附加量, Cr | | mm | Cr = Cr1 + 2Cr2 | | | | **$$041** |
| 有效厚度, δre | | mm |  | | | | **$$042** |
| 有效高度, Hre | | mm | Hre = Hrn – Cr2 | | | | **$$043** |
| 截面积, Aact | | mm2 |  | | | | **$$044** |
| **封 头 计 算 及 校 核** | | | | | | | | |
| 封头计算厚度, δcc | | | mm |  | | | | **$$045** |
| 封头设计厚度, δcd | | | mm | δcd = δcc + Cc2 | | | | **$$046** |
| 封头厚度校核 | | | / | δcn ≥ δcd + Cc1 | | | | **$$047** |
| **筒 体 计 算 及 校 核** | | | | | | | | |
| 筒体计算厚度, δsc | | | mm |  | | | | **$$048** |
| 筒体设计厚度, δsd | | | mm | δsd = δsc + Cs2 | | | | **$$049** |
| 筒体厚度校核 | | | / | δsn ≥ δsd + Cs1 | | | | **$$050** |
| **加 强 圈 计 算 及 校 核** | | | | | | | | |
| 系数, βA | | | / |  | | | | **$$051** |
| 系数, β | | | / |  | | | | **$$052** |
| 加强圈所需横截面积, Ar | | | mm2 |  | | | | **$$053** |
| 加强圈面积校核 | | | / |  | | | | **$$054** |
| 加强圈承载焊缝  最小有效宽度, ∑ti | | | mm | ∑ti = 4Ar/Dsi | | | | **$$055** |
| **压 力 试 验** | | | | | | | | |
| 封头试验压力值, PcT | | | MPa | PcT = max{1.10×Pd×[σ]c/[σ]ct, 0.05} | | | | **$$056** |
| 筒体试验压力值, PsT | | | MPa | PsT = max{1.10×Pd×[σ]s/[σ]st, 0.05} | | | | **$$057** |
| 取用试验压力值, PT | | | MPa | PT = min{PcT, PsT} | | | | **$$058** |
| **MAWP** | | | | | | | | |
| 系数, B2 | | | / |  | | | | **$$059** |
| 系数, B3 | | | / | B3 = 0.25 | | | | **0.25** |
| 系数, β0 | | | / |  | | | | **$$061** |
| 系数, β2 | | | / |  | | | | **$$062** |
| 锥壳部分, MAWPc | | | MPa |  | | | | **$$063** |
| 加强圈过渡部分, MAWPr | | | MPa |  | | | | **$$064** |
| 筒体部分, MAWPs | | | MPa |  | | | | **$$065** |
| 取用MAWP | | | MPa | MAWP = min{MAWPs, MAWPc, MAWPr } | | | | **$$066** |

注：加强圈与壳体间断焊时，每侧间断焊缝的任意间隔应不大于壳体厚度的8倍，且所有间断焊缝的总长不小于加强圈内周长的一半。