|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **无折边锥壳小端内压设计** | | | 计算单位 |  | | | |
| 计算所依据的标准 | | | | **GB/T 150.3-2011** | | | |
| **计 算 条 件** | | | | **锥 壳 简 图** | | | |
| 设计压力, Pd | | MPa | **$$001** | $06  $07  $14  $08  $09 | | | |
| 设计温度, t | | °C | **$$002** |
| 介质静压力, Ps | | MPa | **$$003** |
| 锥 壳 | 材料标准号 | **$$004** | |
| 材料牌号/名称 | **$$005** | |
| 大端内直径, Dbi | mm | **$$006** |
| 小端内直径, Dsi | mm | **$$007** |
| 半顶角, α | ° | **$$008** |
| 名义厚度, δcn | mm | **$$009** |
| 腐蚀裕量, Cc2 | mm | **$$010** |
| 焊接接头系数, φc | / | **$$011** |
| 小端圆筒 | 材料标准号 | **$$012** | |
| 材料牌号/名称 | **$$013** | |
| 名义厚度, δpn | mm | **$$014** |
| 腐蚀裕量, Cp2 | mm | **$$015** |
| 焊接接头系数, φp | / | **$$016** |
| 压力试验类型 | | **液压试验** | |
| **材 料 特 性** | | | | | | | |
| 锥 壳 | 密度, ρc | kg/m³ | **$$018** | 小端筒体 | 密度, ρp | kg/m³ | **$$024** |
| 试验温度屈服点, RceL | MPa | **$$019** | 试验温度屈服点, RpeL | MPa | **$$025** |
| 材料负偏差, Cc1 | mm | **$$020** | 材料负偏差, Cp1 | mm | **$$026** |
| 设计温度许用应力, [σ]ct | MPa | **$$021** | 设计温度许用应力, [σ]pt | MPa | **$$027** |
| 试验温度许用应力, [σ]c | MPa | **$$022** | 试验温度许用应力, [σ]p | MPa | **$$028** |
| 抗拉/屈服控制应力, [σ]ct1 | MPa | **$$023** | 抗拉/屈服控制应力, [σ]pt1 | MPa | **$$029** |
| **过 程 参 数 计 算** | | | | | | | |
| 计算压力, Pc | | MPa | Pc = Pd + Ps | | | | **$$030** |
| 小端筒体 | 厚度附加量, Cp | mm | Cp = Cp1 + Cp2 | | | | **$$031** |
| 有效厚度, δpe | mm |  | | | | **$$032** |
| 内直径, Dpi | mm | Dpi = Dsi | | | | **$$033** |
| 外直径, Dpo | mm | Dpo = Dpi + 2δpn | | | | **$$034** |
| 中面直径, Dpm | mm | Dpm = (Dpi + Dpo)/2 | | | | **$$035** |
| 中面半径, Rpm | mm | Rpm = Dpm/2 | | | | **$$036** |
| 锥 壳 | 厚度附加量, Cc | mm | Cc = Cc1 + Cc2 | | | | **$$037** |
| 有效厚度, δce | mm |  | | | | **$$038** |
| 内压计算内直径, Dbc | mm | Dbc = Dbi | | | | **$$039** |
| 小端外直径, Dso | mm | Dso = Dpo | | | | **$$040** |
| **小 端 筒 体 内 压 计 算 及 校 核** | | | | | | | |
| 小端筒体计算厚度, δpc | | mm |  | | | | **$$041** |
| 小端筒体设计厚度, δpd | | mm | δpd = δpc + Cp2 | | | | **$$042** |
| 小端筒体厚度校核 | | / | δpn ≥ δpd + Cp1 | | | | **$$043** |
| **锥 壳 内 压 计 算 及 校 核** | | | | | | | |
| 锥壳计算厚度, δcc | | mm |  | | | | **$$044** |
| 锥壳设计厚度, δcd | | mm | δcd = δcc + Cc2 | | | | **$$045** |
| 锥壳厚度校核 | | / | δcn ≥ δcd + Cc1 | | | | **$$046** |
| **内 压 作 用 下 小 端 连 接 处 加 强 段 设 计** | | | | | | | |
| 参数, | | / |  | | | | **$$047** |
| 临界半顶角, | | / | 根据查图 5-13 | | | | **$$048** |
| 是否需要加强设计？ | | / |  | | | | **是** |
| 系数, δpc /Rpm | | / | δpc /Rpm | | | | **$$100** |
| 小端应力增值系数, Q2 | | / | 根据α和 查图 5-14 | | | | **$$101** |
| 加强段计算厚度, δrc | | mm |  | | | | **$$102** |
| 加强段设计厚度, δrd | | mm |  | | | | **$$103** |
| 锥壳加强段最小长度, Lrc | | mm |  | | | | **$$104** |
| 圆筒加强段最小长度, Lrs | | mm |  | | | | **$$105** |
| **内 压 和 轴 向 载 荷 共 同 作 用 下 小 端 连 接 处 的 加 强 设 计** | | | | | | | |
| 参数, | | / |  | | | | **$$200** |
| 临界半顶角, Δ | | ° | 根据查表5-5 | | | | **$$201** |
| 是否需要加强设计? | | / | α > Δ | | | | **否** |
| **压 力 试 验** | | | | | | | |
| 锥壳试验压力, PcT | | MPa | PcT = 1.25×Pd×[σ]c/max{[σ]ct , [σ]ct1} | | | | **$$050** |
| 小端筒体试验压力, PpT | | MPa | PpT = 1.25×Pd×[σ]p/max{[σ]pt , [σ]pt1} | | | | **$$051** |
| 取用试验压力, PT | | MPa | PT = min{ PcT, PpT } | | | | **$$052** |