|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **半圆形容器强度校核** | | | | 计算单位 |  | | | |
| 计算依据 | | | | | 《化工设备元件强度计算》设备中心站, 1992年, 第二版 | | | |
| **计 算 条 件** | | | | | **简 图** | | | |
| 设计压力, Pd | | | MPa | **$$001** | $19  $14  $08  $07  $09 | | | |
| 设计温度, t | | | ℃ | **$$002** |
| 静压力, Ps | | | MPa | **$$003** |
| 压力试验类型 | | | **$$004** | |
| 半圆筒 | 材料标准号 | | **$$005** | |
| 材料牌号/名称 | | **$$006** | |
| 外直径, Dso | | mm | **$$007** |
| 长度, L | | mm | **$$008** |
| 名义厚度, δsn | | mm | **$$009** |
| 腐蚀裕量, Cs2 | | mm | **$$010** |
| 焊接接头系数, φs | | / | **$$011** |
| 底板 | 材料标准号 | | **$$012** | |
| 材料牌号/名称 | | **$$013** | |
| 名义厚度, δbn | | mm | **$$014** |
| 腐蚀裕量, Cb2 | | mm | **$$015** |
| 焊接接头系数, φb | | / | **$$016** |
| 端板 | 材料标准号 | | **$$017** | |
| 材料牌号/名称 | | **$$018** | |
| 名义厚度, δen | | mm | **$$019** |
| 腐蚀裕量, Ce2 | | mm | **$$020** |
| 焊接接头系数, φe | | / | **$$021** |
| **材 料 特 性** | | | | | | | | |
| 半 圆 筒 | 密度, ρs | | kg/m³ | **$$022** | 底 板 | 密度, ρb | kg/m³ | **$$031** |
| 材料负偏差, Cs1 | | mm | **$$023** | 材料负偏差, Cb1 | mm | **$$032** |
| 试验温度屈服点, | | MPa | **$$024** | 试验温度屈服点, | MPa | **$$033** |
| 设计温度许用应力, [σ]st | | MPa | **$$025** | 设计温度许用应力, [σ]bt | MPa | **$$034** |
| 试验温度许用应力, [σ]s | | MPa | **$$026** | 试验温度许用应力, [σ]b | MPa | **$$035** |
| 抗拉屈服控制应力, [σ]st1 | | MPa | **$$027** | 抗拉屈服控制应力, [σ]bt1 | MPa | **$$036** |
| 端 板 | 密度, ρe | | kg/m³ | **$$028** | 设计温度许用应力, [σ]et | | MPa | **$$037** |
| 材料负偏差, Ce1 | | mm | **$$029** | 试验温度许用应力, [σ]e | | MPa | **$$038** |
| 试验温度屈服点, | MPa | | **$$030** | 抗拉屈服控制应力, [σ]et1 | | MPa | **$$039** |
| **过 程 参 数** | | | | | | | | |
| 计算压力, Pc | | | MPa | Pc = Pd + Ps | | | | **$$040** |
| 半圆筒 | 厚度附加量, Cs | | mm | Cs = Cs1 + Cs2 | | | | **$$041** |
| 有效厚度, δse | | mm |  | | | | **$$042** |
| 外半径, Rso | | mm |  | | | | **$$043** |
| 底板 | 厚度附加量, Cb | | mm | Cb = Cb1 + Cb2 | | | | **$$044** |
| 有效厚度, δbe | | mm |  | | | | **$$045** |
| 端板 | 厚度附加量, Ce | | mm | Ce = Ce1 + Ce2 | | | | **$$046** |
| 有效厚度, δee | | mm |  | | | | **$$047** |
| **半 圆 筒 应 力 计 算 及 校 核** | | | | | | | | |
| 中央部分 | 环向拉应力, σsc | | MPa |  | | | | **$$048** |
| 许用拉应力 | | MPa | [σ]stφs | | | | **$$049** |
| 拉应力校核 | | / | σsc <= [σ]stφs | | | | **$$050** |
| 与底板连接处 | 应力修正系数, Ks | | / |  | | | | **$$051** |
| 最大压应力, σscc | | MPa |  | | | | **$$052** |
| 许用应力, | | MPa |  | | | | **$$053** |
| 应力校核 | | / |  | | | | **$$054** |
| **底 板 应 力 计 算 及 校 核** | | | | | | | | |
| 应力修正系数, Kb | | | / |  | | | | **$$055** |
| 最大应力, σbc | | | MPa |  | | | | **$$056** |
| 许用应力, | | | MPa |  | | | | **$$057** |
| 应力校核 | | | / |  | | | | **$$058** |
| **端 板 应 力 计 算 及 校 核** | | | | | | | | |
| 应力修正系数, Ke | | | / |  | | | | **$$059** |
| 端板最大径向应力, σec | | | MPa |  | | | | **$$060** |
| 许用应力, | | | MPa |  | | | | **$$061** |
| 应力校核 | | | / |  | | | | **$$062** |
| **压 力 试 验** | | | | | | | | |
| 试验系数, η | | | / |  | | | | **$$063** |
| 半圆筒试验压力值, PsT | | | MPa | PsT = η ×Pd×[σ]s/max{[σ]st , [σ]st1} | | | | **$$064** |
| 底板试验压力值, PbT | | | MPa | PbT = η ×Pd×[σ]b/max{[σ]bt , [σ]bt1} | | | | **$$065** |
| 端板试验压力值, PeT | | | MPa | PeT = η ×Pd×[σ]e/max{[σ]et , [σ]et1} | | | | **$$066** |
| 试验压力值, PT | | | MPa | PT = min{PsT, PbT, PeT} | | | | **$$067** |