|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **填料支承梁校核** | | | 计算单位 | |  | | | |
| 计算所依据的标准 | | | | | **SH/T 3098-2011、GB 50017-2003** | | | |
| **计算条件** | | | | | **计算简图** | | | |
| 设计温度, t | | ℃ | **$$001** | | $08  $09  $10  $11  均布载荷  $09  $12  集中载荷1000N  集中载荷1000N  L/3  L/3 | | | |
| 填料质量, m1 | | kg | **$$002** | |
| 填料持液量, m2 | | kg | **$$003** | |
| 格栅质量, m3 | | kg | **$$004** | |
| 支承梁材料标准号 | | **$$005** | | |
| 支承梁材料名称/牌号 | | **$$006** | | |
| 支承梁腐蚀裕量, C2 | | mm | **$$007** | |
| 几何数据 | 横板厚度, δhn | mm | **$$008** | |
| 竖板厚度,δvn | mm | **$$009** | |
| 宽度, Wn | mm | **$$010** | |
| 高度, H | mm | **$$011** | |
| 梁(最大)跨度, L | mm | **$$012** | |
| 支承梁数量, n | | / | **$$100** | |
| **材料特性** | | | | | | | | |
| 横板 | 材料负偏差, Ch1 | mm | **$$013** | | 竖板 | 材料负偏差, Cv1 | mm | **$$019** |
| 常温许用应力, [σ]h | MPa | **$$014** | | 常温许用应力, [σ]v | MPa | **$$020** |
| 设计温度许用应力,[σ]ht | MPa | **$$015** | | 设计温度许用应力,[σ]vt | MPa | **$$021** |
| 设计温度屈服点, | MPa | **$$016** | | 设计温度屈服点, | MPa | **$$022** |
| 密度, ρ | | kg/m³ | **$$017** | 设计温度弹性模量,Et | | | 10³×MPa | **$$023** |
| **过程参数** | | | | | | | | |
| 不均匀系数, k | | / |  | | | | | **$$101** |
| 重力加速度, g | | m/s2 | g = 9.8 | | | | | **9.8** |
| 横板厚度附加量,Ch | | mm | Ch=2C2+ Ch1 | | | | | **$$025** |
| 横板有效厚度,δhe | | mm | δhe= δhn- Ch | | | | | **$$026** |
| 竖板厚度附加量, Cv | | mm | Cv=2C2+ Cv1 | | | | | **$$027** |
| 竖板有效厚度,δve | | mm | δve= δvn–Cv | | | | | **$$028** |
| 梁有效宽度, We | | mm | We= Wn– 2×C2 | | | | | **$$029** |
| 梁有效高度, He | | mm | He= H-2×C2-Ch1 | | | | | **$$030** |
| 梁的质量, m4 | | kg |  | | | | | **$$031** |
| 尺寸, b | | mm |  | | | | | **$$200** |
| 重心外边距, ey1 | | mm |  | | | | | **$$201** |
| 重心外边距, ey2 | | mm | ey2=He–ey1 | | | | | **$$202** |
| 尺寸, s | | mm | s = ey1-δhe | | | | | **$$203** |
| 梁截面惯性矩, J | | mm4 |  | | | | | **$$032** |
| 抗弯截面模数, W | | mm3 | W = J/max{ey1, ey2} | | | | | **$$033** |
| 梁的常温取用应力, [σ] | | MPa | [σ] = min{[σ]h, [σ]v} | | | | | **$$034** |
| 梁设计温度取用应力, [σ]t | | MPa | [σ]t= min{[σ]ht, [σ]vt} | | | | | **$$035** |
| 梁设计温度取用屈服点, | | MPa | = min{,} | | | | | **$$036** |
| **操作工况强度校核** | | | | | | | | |
| 填料质量均布载荷,q1 | | N/mm | q1= m1g/L | | | | | **$$037** |
| 填料持液量均布载荷, q2 | | N/mm | q2= m2g/L | | | | | **$$038** |
| 格栅质量均布载荷, q3 | | N/mm | q3= m3g/L | | | | | **$$039** |
| 梁的质量均布载荷, q4 | | N/mm | q4=m4g/L | | | | | **$$040** |
| 总均布载荷, q | | N/mm |  | | | | | **$$041** |
| 最大弯矩, | | N·mm |  | | | | | **$$042** |
| 弯曲应力,σt | | MPa |  | | | | | **$$043** |
| 应力校核 | | / |  | | | | | **$$044** |
| 挠度, y | | mm |  | | | | | **$$045** |
| 梁的许用挠度, [y] | | mm |  | | | | | **$$046** |
| 挠度校核 | | / | y <= [y] | | | | | **$$047** |
| **操作工况整体稳定性校核** | | | | | | | | |
| 截面展开长度,LT | | mm |  | | | | | **$$204** |
| 平均厚度,δm | | mm |  | | | | | **$$205** |
| 计算整体稳定系数,Φb | | / |  | | | | | **$$052** |
| 取用稳定系数,Φ | | / |  | | | | | **$$053** |
| 计算应力,σbt | | MPa |  | | | | | **$$054** |
| 应力校核 | | / |  | | | | | **$$055** |
| **安装/检修工况强度校核** | | | | | | | | |
| 集中载荷, F | | N | 梁两端1/3处各作用1000 N的集中载荷 | | | | | **1000** |
| 最大弯矩, Mmax | | N·mm |  | | | | | **$$057** |
| 弯曲应力,σ | | MPa |  | | | | | **$$058** |
| 应力校核 | | / |  | | | | | **$$059** |