**Rib Scale Analysis—Weber Semi Concert Grand**

**David Love**

**4/18/16**

**Weber Rib Scale Design: Chris Chernobieff**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Rib #** | Design Load | Working length (mm) | L (in) | Width (mm) | W (in) | t Height (mm) | H (in) |
|  |  |  |  |  |  |  |  |
| **1** | 55 | 508 | 20 | 24.4 | 0.96 | 13.0 | 0.5 |
| **2** | 56 | 765 | 30.1 | 25.1 | 0.99 | 16.5 | 0.6 |
| **3** | 57 | 927 | 36.5 | 26.2 | 1.03 | 18.8 | 0.7 |
| **4** | 58 | 1003 | 39.5 | 26.2 | 1.03 | 19.1 | 0.8 |
| **5** | 59 | 1057 | 41.6 | 25.9 | 1.02 | 21.6 | 0.9 |
| **6** | 60 | 997 | 39.3 | 25.9 | 1.02 | 21.6 | 0.9 |
| **7** | 61 | 937 | 36.9 | 26.2 | 1.03 | 21.6 | 0.9 |
| **8** | 62 | 889 | 35 | 26.4 | 1.04 | 21.8 | 0.9 |
| **9** | 63 | 832 | 32.8 | 25.9 | 1.02 | 21.8 | 0.9 |
| **10** | 64 | 721 | 28.4 | 25.7 | 1.01 | 21.8 | 0.9 |
| **11** | 65 | 603 | 23.7 | 23.9 | 0.94 | 21.8 | 0.9 |
| **12** | 64 | 502 | 19.8 | 22.9 | 0.90 | 19.1 | 0.8 |
| **13** | 63 | 432 | 17 | 21.6 | 0.85 | 16.0 | 0.6 |
| **14** | 62 | 375 | 14.8 | 21.1 | 0.83 | 13.2 | 0.5 |
| **15** | 61 | 229 | 9.02 | 20.8 | 0.82 | 10.9 | 0.4 |

**Weber Rib Scale Performance Data: Chris Chernobieff**

Deflection Characteristics Under Load and MOI

**Modified Weber Rib Scale Design: David Love**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Rib #** | Design Load (lbs) | Working length (mm) | L (in) | Width (mm) | W (in) | Height (mm) |
|  |  |  |  |  |  |  |
| **1** | 55 | 508 | 20 | 20.0 | 0.79 | 19.5 |
| **2** | 56 | 765 | 30.1 | 21.0 | 0.83 | 21.8 |
| **3** | 57 | 927 | 36.5 | 22.5 | 0.89 | 22.8 |
| **4** | 58 | 1003 | 39.5 | 23.0 | 0.91 | 23.5 |
| **5** | 59 | 1057 | 41.6 | 24.0 | 0.94 | 23.5 |
| **6** | 60 | 997 | 39.3 | 24.0 | 0.94 | 23.4 |
| **7** | 61 | 937 | 36.9 | 24.0 | 0.94 | 23.0 |
| **8** | 62 | 889 | 35 | 23.0 | 0.91 | 23.0 |
| **9** | 63 | 832 | 32.8 | 22.0 | 0.87 | 23.0 |
| **10** | 64 | 721 | 28.4 | 21.0 | 0.83 | 22.5 |
| **11** | 65 | 603 | 23.7 | 20.0 | 0.79 | 21.5 |
| **12** | 64 | 502 | 19.8 | 19.0 | 0.75 | 20.5 |
| **13** | 63 | 432 | 17 | 18.0 | 0.71 | 19.5 |
| **14** | 62 | 375 | 14.8 | 17.0 | 0.67 | 19.0 |
| **15** | 61 | 229 | 9.02 | 16.0 | 0.63 | 16.5 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Modified Weber Rib Scale Performance: David Love**

Deflection Characteristics Under Load and MOI

**Notes:**

**Calculated at constant 15 M radius**

**Sugar Pine Ribs MOE 1190000**

**Rib defections calculated based on constant cross section**