

HAYNES[®] HR-160[®] alloy

Thermal Stability

| Exposure Temperature | | Exposure Duration | 0.2% Yield strength | | Ultimate Tensile Strength | | 4D Elongation | AGL* | RA | Impact energy | |
|----------------------|------|-------------------|---------------------|-----|---------------------------|-----|---------------|------|------|---------------|-----|
| °F | °C | h | ksi | MPa | ksi | MPa | % | % | % | ft-lb | J |
| - | - | 0 | 49 | 338 | 119.7 | 825 | 64.1 | 59.6 | 70.6 | 263 | 357 |
| 1200 | 649 | 1000 | 51.5 | 355 | 123.6 | 852 | 32.2 | 32.8 | 28.8 | 29 | 39 |
| 1200 | 649 | 4000 | 54.5 | 376 | 131.4 | 906 | 30.2 | 30 | 26.4 | 27 | 36 |
| 1200 | 649 | 8000 | 54.7 | 377 | 130.4 | 899 | 23.1 | 22.8 | 20 | 23 | 31 |
| 1200 | 649 | 16000 | 55.3 | 381 | 135.8 | 936 | 24.7 | 23.4 | 20.8 | 21 | 28 |
| 1200 | 649 | 20000 | 53.7 | 370 | 129.1 | 890 | 27.4 | 27.1 | 24.6 | 26 | 35 |
| 1200 | 649 | 30000 | 53.5 | 369 | 131.3 | 905 | 24.7 | 24.2 | 23.7 | 22 | 30 |
| 1200 | 649 | 50000 | 53.8 | 371 | 134.5 | 927 | 28.3 | 26.4 | 22.1 | 21 | 29 |
| 1400 | 760 | 1000 | 50.8 | 350 | 131.1 | 904 | 26.8 | 26.9 | 22.2 | 24 | 33 |
| 1400 | 760 | 4000 | 50.6 | 349 | 131.1 | 904 | 26.3 | 26.1 | 26 | 21 | 28 |
| 1400 | 760 | 8000 | 50 | 345 | 130.1 | 897 | 24.8 | 25.1 | 22.5 | 19 | 26 |
| 1400 | 760 | 16000 | 49.9 | 344 | 130.7 | 901 | 24.6 | 25 | 21.2 | 19 | 26 |
| 1400 | 760 | 20000 | 43.7 | 301 | 107.9 | 744 | 20.2 | 19.3 | 14 | 12 | 16 |
| 1400 | 760 | 30000 | 44.7 | 308 | 102.4 | 706 | - | 16.4 | 11.3 | 10 | 14 |
| 1400 | 760 | 50000 | 43.5 | 300 | 102.3 | 705 | - | 16.2 | 12.4 | 10 | 13 |
| 1600 | 871 | 1000 | 45.7 | 315 | 114.6 | 790 | 23.2 | 23.8 | 20.8 | 17 | 23 |
| 1600 | 871 | 4000 | 44.5 | 307 | 114 | 786 | 24.8 | 25.1 | 20.5 | 17 | 23 |
| 1600 | 871 | 8000 | 44.7 | 308 | 114.9 | 792 | 24.8 | 25.3 | 22.6 | 15 | 21 |
| 1600 | 871 | 16000 | 44.4 | 306 | 115 | 793 | 25.2 | 25.9 | 22.2 | 16 | 22 |
| 1600 | 871 | 20000 | 41 | 283 | 88.6 | 611 | 17 | 17.2 | 15.1 | 6 | 8 |
| 1600 | 871 | 30000 | 41.6 | 287 | 89.9 | 620 | 18.3 | 18.1 | 15.3 | 7 | 10 |
| 1600 | 871 | 50000 | 40.9 | 282 | 86.2 | 594 | 17.4 | 17.6 | 14.5 | 8 | 11 |
| 1800 | 982 | 1000 | 43.9 | 303 | 119.1 | 821 | 44.6 | 44.9 | 39 | 49 | 66 |
| 1800 | 982 | 4000 | 43.7 | 301 | 117.5 | 810 | 45.3 | 44.5 | 39.2 | 46 | 63 |
| 1800 | 982 | 8000 | 43.2 | 298 | 115.3 | 795 | 44.4 | 43.6 | 38 | 44 | 59 |
| 1800 | 982 | 16000 | 43.4 | 299 | 114.3 | 788 | 49.4 | 48.5 | 42 | 54 | 73 |
| 2000 | 1093 | 1000 | 38.4 | 265 | 104.4 | 720 | 62.3 | 64.3 | 62.8 | 264 | 358 |
| 2000 | 1093 | 5065 | 37.6 | 259 | 99.5 | 686 | 74 | 72.1 | 65.4 | 263 | 357 |
| 2000 | 1093 | 8000 | 37.6 | 259 | 100.2 | 691 | 64.6 | 67.1 | 60.1 | 264 | 358 |

*AGL is adjusted gauge length and AGL % elongation is useful when tensile fracture

RA= Reduction of Area

