

Mir 50® vs. Various Stainless Steels

| Mir 50® High Strength Corrosion Resistant - High Strength | 410 and 416 Commercial Grade Stainless Steel |
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| High degree of corrosion resistance like type 316 Hardened “PH” Custom Stainless Alloy | Relatively low degree of corrosion resistance compared to 316. General tool room grades of hardenable stainless. Worst of both worlds – not a great stainless. Not a great hardened alloy. |
| Elevated strength levels. Hardness as delivered – 26 to 33RC. Typical Tensile approx. 140K @ 28RC. Can be hardened to 36 to 44RC with very little loss in corrosion resistance. | Most often delivered at 22 to 28 RC. Typical Tensile @ 26RC, 120KSI. Additional hardening diminishes corrosion resistance and lowers toughness. |
| Anti-Galling – Compatible with most stainless, carbon and alloy grades of steel | Susceptible to galling. Parts can seize and tear during routine disassembly. |
| Easy to machine without the addition of detrimental additives, such as sulfur and selenium. | S, or Se added to 410 to make it easier to machine (416). That inhibits welding, and lowers strength. |
| Low carbon levels (.05) | High carbon levels (.15), lowers corrosion resistance and toughness. Contributes to corrosion cracking. |
| Low degree of memory. Low degree of retained stress. Very little movement during machining or in service. | High “memory” , retained stress causes bow and twist in thermal treatment, machining, and in service. |
| High degree of wear resistance as delivered. Can be safely hardened to wear plate levels of 352 to 425BHN. | Very low degree of wear resistance. Further hardening diminishes corrosion resistance. |
| Welds easily. Welding data is available. | In 410, higher carbon increases susceptibility for weld cracks. (416 not recommended for welding). |
| Elevated Nickel content , with additions of Moly, Columbium and Tantalum for corrosion resistance, strength and toughness. | Low chemistry general tool room grade. No Nickel. Low strength and toughness. |
| 28RC – Charpy V notch impact of near 120ft/lbs @ 70F. %RA=70, %EL=28 | 28RC - Charpy V notch impact of 38ft/lbs, 70F. %RA=60. %EL=19 |
| Stress corrosion test .1% NaCl+.5% Acetic Acid + H/2S @33RC, 60KSI applied stress. No findings after 500hrs | At 35RC, 60KSI applied stress – visible change after 3 hours. |

The above is furnished as a sales aid for comparison purposes, and should not be used for engineering data. This compares our hardened stainless alloy to the most common grades of hardenable stainless. Because of the elevated corrosion resistant properties of Mir 50, it is most often compared to other grades of stainless that possess greater corrosion resistant properties, such as Type 316L.