NEW MATERIAL TECHNOLOGY CHANGES THE STATUS QUO

Martensitic Structural Solutions

KVA has developed proprietary methods to produce welded and brazed tubular forms, stamped and shelled structures, using martensitic corrosion resistant steels. High strength structural shapes can now be integrated into high performance structural assemblies to reduce weight, increase strength and stiffness, without significant cost increases.

Benefits:
- Reduced weight
- Increased strength
- Increased toughness
- Increased durability
- Enhanced formability
- Improved fatigue performance
- Enhanced corrosion resistance

Suitable applications:
- Automotive structures
- Aviation structures
- Oil production
- Train cars
- Bridges
- Bicycle frames
- Sports equipment

Excellent mechanical properties, including specific strength and stiffness, toughness and fatigue performance, in addition to corrosion resistance, can be achieved using martensitic stainless steels in place of other materials. Tensile strengths in excess of 200 ksi (1400 MPa) are capable from simple low cost air hardening quench processes.

KVA’s technology has overcome the conventional limitations of high speed welding

air hardenable martensitic stainless steels. Previous production difficulties, such as cold cracking of the heat affected zone under mechanical straining and forming, have been eliminated.

Reliable, repeatable, high integrity parts can be fabricated from commonly available, inexpensive straight chromium alloy grades.

As the above charts indicate, the superior mechanical properties of KVA martensitic processed stainless allows for significant weight savings and/or stronger components.

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These charts also indicate, when a part is redesigned to take advantage of a high performance engineering material, namely to reduce weight while maintaining current strength levels, a part redesigned with KVA stainless steel can achieve a significant weight reduction and cost much less than other ‘lightweight’ metals.
**Automotive specific applications include:**

- Removable chassis components (bumper beams, frame cross members, suspension control arms, subframes, etc.)
- Safety/intrusion management components (side impact beams, roof bows, roof rails, B-pillars, etc.)

- Vehicle seat frames and supports
- Vehicle accessories (tow hooks, racks, running boards, etc.)
- Entire chassis frame rails
Located in southern California, KVA is focused on developing and promoting proprietary structural applications for low cost advanced high strength martensitic stainless alloys in various industries.

KVA’s president, Mr. Ed McCrink, founded Hi-Temp, Inc. in 1953 and grew the company to become one of the largest processors of hardenable alloys in North America. Since successfully selling Hi-Temp in the 1970’s, he has continuously pursued his vision of utilizing commonly available martensitic stainless steels to reduce weight and increase strength in structures. KVA’s R&D efforts are dedicated to developing, promoting and licensing intellectual property and martensitic stainless processing know how to arrive at cost effective, superior mechanical and structural solutions.