

KAISER
ALUMINUM
Best in Class

SELECT™ PRECISION ROD™

A breakthrough improvement in aluminum extruded products at a reduced cost.

KaiserSelect™



Kaiser Aluminum—Providing innovative, integrated, quality-driven services from materials engineering through the mill to delivery. You can count on Kaiser.

One of the world's leading producers of aluminum products and engineered materials, Kaiser produces a wide range of innovative products, many of which have become industry standards.

Kaiser's resource of metallurgical and technical support coupled with our multi-plant capabilities ensures that our fabricated products meet your critical application needs.

Through our ISO 9000 based series of production process standards and our dedicated staff, we provide the highest quality product and industry leading technical support, all to help our customers solve their material problems.



For more information on Kaiser Precision Rod™, the complete line of Kaiser and Kaiser Select™ products and a list of Kaiser distributors in your area, visit www.kaiser.com or call 800-446-7060.

For over forty years, Kaiser has been recognized as a major innovator and supplier of extruded aluminum products for the aerospace, automotive, electronics, machining and equipment industries. Over the years, Kaiser has leveraged its multi-plant capability and engineering resources to regularly advance the industry standard for soft alloy extruded products.

Kaiser raises the bar on aluminum extruded products

Setting a new standard, Kaiser Select™ Precision Rod™ meets the demanding requirements of automatic machining and delivers superior performance and value over other extruded aluminum products.

Providing design engineers with the performance properties they expect, Kaiser Precision Rod has improved surface finish,

closer dimensional tolerances and increased straightness, resulting in nearer-net products for exacting end-use applications.

Available in Kaiser's enhanced 6061 alloy and ranging in size to 3 inches diameter, Kaiser Precision Rod takes performance and quality to the next level.

- ▶ Improved dimensional tolerance—up to 2/3 better than commercial extruded rod.
- ▶ Increased straightness—a full 1/3 better than the AA standard.
- ▶ Elevated mechanical properties—superior manufacturing process for providing a significantly reduced variation of production results around a designed strength target.
- ▶ Improved surface qualities—innovative materials and process technology resulting in typical 90-100 RMS surface. This means less clean up of stock finish.

With its enhanced composition, Kaiser Precision Rod consistently outperforms the competition.

- ▶ Reduced machining time and tool wear—harder composition resulting in fewer burrs and smaller chips during machining applications.
- ▶ Cost and performance excellence—closer near-net products at a significant savings over other close tolerance aluminum products.

Kaiser Precision Rod—the best value in an extruded product today.



improvement in aluminum extruded products at a reduced cost.

Improved dimensional tolerance for lot-to-lot consistency

Kaiser Precision Rod™ is the result of our ongoing materials and process research and development activity. Through Kaiser advancements in materials, processes, equipment, design and tooling, Kaiser Precision Rod offers dimension tolerances that are up to 2/3 better than commercial extruded rod, making for an outstanding material choice.

Increased rod straightness surpasses industry standards

Kaiser has developed and implemented innovative new die designs and an enhanced Press Process Control System to dramatically improve rod straightness. As a result, Kaiser produces Kaiser Precision Rod to a straightness of no more than 0.100 inches in 12 feet—a full 1/3 improvement over the AA standard of 0.150 inches in 12 feet.

Kaiser Select™ Precision Rod™

TOLERANCE COMPARISON

Rod Diameter Size	Kaiser Precision Rod™ Tolerances	“Close” Tolerance Extruded Rod	STD AA Dimension Tolerances
0.500	+/- .004	+/- .005	+/- .009
0.562	+/- .004	+/- .005	+/- .009
0.625	+/- .004	+/- .005	+/- .009
0.750	+/- .004	+/- .005	+/- .010
0.875	+/- .004	+/- .005	+/- .010
1.000	+/- .004	+/- .005	+/- .012
1.125	+/- .005	+/- .006	+/- .012
1.188	+/- .005	+/- .006	+/- .012
1.250	+/- .005	+/- .006	+/- .012
1.312	+/- .005	+/- .006	+/- .012
1.375	+/- .005	+/- .006	+/- .012
1.500	+/- .005	+/- .006	+/- .014
1.625	+/- .005	+/- .006	+/- .014
1.750	+/- .005	+/- .006	+/- .014
1.875	+/- .005	+/- .006	+/- .014
2.000	+/- .008	+/- .008	+/- .014
2.125	+/- .008	+/- .008	+/- .024
2.250	+/- .008	+/- .008	+/- .024
2.375	+/- .008	+/- .008	+/- .024
2.500	+/- .008	+/- .008	+/- .024
2.625	+/- .008	+/- .008	+/- .024
2.750	+/- .008	+/- .008	+/- .024
2.875	+/- .008	+/- .008	+/- .024
3.000	+/- .008	+/- .008	+/- .024

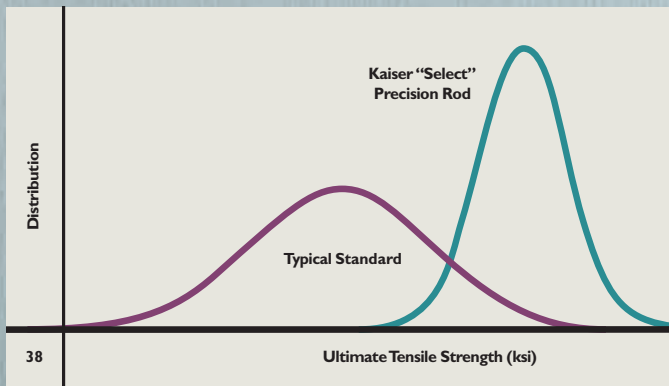
Reduced machining and retooling costs

Kaiser Precision Rod's increased hardness and overall consistency result in fewer burrs and smaller, broken chips and the capability to machine at higher speeds. That translates into improved, and repeatable, piece-to-piece, lot-to-lot performance over other extruded aluminum products.

Improved mechanical properties and reduced variation

Kaiser Precision Rod uses a specific 6061 alloy composition, improved casting control and tight press process control manufacturing to achieve significant improvements in mechanical variations. Kaiser Precision Rod's mechanical properties remain in the desired narrow range, consistently above industry standards.

ULTIMATE TENSILE STRENGTH



Distributions show Precision Rod's increased mechanical strength and decreased variation when compared to typical industry standard product.

Additionally, the 6061 alloy in Kaiser Precision Rod increases its mechanical strength and the overall hardness of the material, resulting in a consistently higher mechanical performance level, while our press process control reduces process variation for more consistent material size that is much closer to the desired finish size, lot-to-lot, order to order. That means Kaiser Precision Rod machines better and has less material and performance variation, not only providing more lot-to-lot consistency, but also greatly reducing piece rejection rates when compared to competitors' close tolerance aluminum products. The result: more consistent machined parts, less waste and lower machining costs.

State-of-the-art process control systems result in improved surface qualities

Using the latest world-class, industrial control systems and automated extrusion technology, we produce superior surface finish throughout the manufacturing process, resulting in a superior rod product. In fact, it's the best published surface finish for extruded rod in the industry.

Producing specially-designed alloys with improved casting control and holding tight, process recipe parameters help achieve Kaiser Precision Rod's superior surface's typical 90-100 RMS finish. Lot in and lot out.

KAISER PRECISION ROD™



COMPETITIVE GRADE



Precision Rod's short, tight and compact chips from form tools allow machinery to operate smoothly, minimizing downtime and costs. Whereas competitive grades' chips are typically long, stringy spirals that often entangle with themselves and machine tools, causing unwanted disruptions to clear the chips.

Closer net products at a significant savings

Not only is Kaiser Precision Rod a smart choice for today's demanding manufacturing needs, based on its mechanical and technical performance superiority, it's extremely cost efficient, too.

Kaiser Precision Rod offers a total value advantage over other close tolerance aluminum products—providing closer net products with greater productivity, higher quality and significantly lower cost—taking your automatic machining process to the next level.



Kaiser Aluminum & Chemical Corporation

Select Precision Rod

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