

## LETTER OF COMPLIANCE

To Whom It May Concern:

All KIC hubs, drums, spoke wheels, rotors and steel wheels are engineered/designed and validated in the United States. Validation is performed at a variety of certified testing facilities, for example, Link Test Labs, Smithers and Standard Testing Labs to name a few. KIC enjoys a global manufacturing footprint including the United States, China and Turkey. US Manufacturing facilities include foundry, machining and assembly operations. KIC brake drums are designed, manufactured, and distributed throughout North America as OEM and aftermarket replacement drums. KIC brake drums are fully compliant with the following standards:

1. Material – KIC pours two grades of gray iron: Grade 3000b or 30,000 psi with an HB 187 – 240 (Brinell hardness) (6- series drums), and Grade 3500b or 35,000 psi tensile strength gray iron with an HB 207-255 (5- series drums). KIC specification M-500-1 and M-555-1 for gray iron meet SAE and ASTM for gray iron brake drum casting requirements.
  - a. SAE J431 Automotive Gray Iron Castings
  - b. ASTM A-159 Standard Specification for Automotive Gray Iron Castings
  - c. ASTM E-8 Standard Test Methods for Tension Testing of Metallic Materials
  - d. ASTM E-10 Standard Test Method for Brinell Hardness Testing of Metallic Materials
  - e. ASTM A-247 Standard Test Method for Evaluating the Microstructure of Graphite in Iron Castings
  - f. ASTM A-438 Standard Test Method for Transverse Testing of Gray Castings (as required by customers)
2. Design/Geometry – KIC acquired Reyco's brake drum business in 1997. Since then, KIC has added new brake drums to strengthen our product line and improve our interchangeability. KIC has 120 part numbers that we actively stock in 9 regional warehouses. KIC brake drums are designed to be interchangeable. This done by meeting following SAE industry geometry requirements:
  - a. SAE J1671 Outboard Mounted Brake Drum/Disc Wheel Hub Interface Dimensions – Commercial Vehicles
  - b. SAE J1865 –Dimensional Compatibility for Commercial Vehicles Fitment of Complete Wheels
3. Coatings – KIC applies a red oxide base primer to the shot blast surface of the drum. A black nitrocellulose matt enamel primer topcoat is applied to the cast surfaces after machining. A rust preventative coating protects the machine surfaces. The coatings are specified in KIC specs M-500-1 and M-555-1.
  - a. ASTM B117 Standard Practice for Operating Salt Spray Apparatus

KIC tests brake drums using dynamometers in compliance with Federal Motor Vehicle Safety Standard (FMVSS) 121 and to determine drum durability. The product meets/exceeds the acceptance criteria of OEM axle, trailer and vehicle manufacturers in North America. Transit authorities use KIC product across North America, which requires separate testing and approval processes specific to transit authorities. KIC brake drums are standard with many of the major North America aftermarket buying groups.

KIC brake drums and hub/drum assemblies are manufactured under contract by foundries that are currently TS 16949, having upgraded from QS9000. In addition to outside third party quality audits, KIC engineers conduct audits of the foundries, machining and assembly plants based on best practices, controls plans, FMEAs, and other documentation. KIC has a global quality control team addition to US based staff to help manage product quality, production requirements, and logistics. Plants are visited at

least once a quarter with a focus on quality and continual improvement. KIC can provide first article samples as well as level 3, PPAP documentation.

As for KIC hubs, all KIC hubs are designed to comply with all pertinent SAE and ASTM standards:

1. ASTM A-536 (Grade 65-45-12)- Standard Specification for Ductile Iron Castings
2. SAE J434 (D450/D4512) – Automotive Ductile (Nodular) Iron Castings
3. ASTM E-8- Methods of Tension Testing of Metallic Materials
4. ASTM A-247- Microstructure Evaluation Procedure
5. ASTM B117 Salt Spray Test Procedure
6. SAE J1095 Rotary Fatigue Test Procedure

KIC hubs are tested at third-party certified test labs using SAE J1095 rotary fatigue test procedures.

KIC's Steel Wheels are designed to meet all pertinent US standards. Our steel wheel product line consists of the most popular commercial truck and trailer wheels. The wheels are manufactured in a State of the Art production facility that is TS 16949 quality certified. As with all of KIC's products, KIC controls all the design aspects of the wheels through specifications, drawings, testing, and quality assurance audits.

Specifically, the following industry standards are met to ensure that KIC wheels will be dimensionally interchangeable with similar, commercially available wheel rims:

1. The Tire and Rim Association dimensional requirements are met for the rim shape and rim valve dimensions.
2. SAE J1865 compliance check was performed to ensure KIC wheel rims do not pose interference issues with common brake drum sizes.
3. SAE J694 dimensional requirements are met for the wheel rim to hub interfacing specifics. This includes: the center bore diameter, bolt hole diameter, and spherical ball seat nut recess.
4. SAE J2133 radial first harmonic of the wheel rim is marked on the weather side of the rim.
5. KIC wheel rims are dynamically checked to ensure imbalance is less than 28 in\*oz (half the allowance of TMC RP214)

Additionally, KIC wheels meet all Federal Motor Vehicle Safety Standards (FMVSS/CMVSS 120) and are SAE J179 compliant. KIC wheels are marked as follows:

1. Manufacturer name – “KIC” to be marked on the rim and disc.
2. RIM Size (e.g. “22.5x8.25”) to be marked on rim.
3. DOT Symbol “DOT” is marked to indicate compliance with FMVSS 120 to be marked on rim.
4. Tire and Rim Association as the dimensional source is indicated by a “T”
5. Manufacturing Date – Month-Day-Year (e.g. “08-04-09”) to be marked on rim
6. Country of Origin to be marked “China” on rim
7. All wheels have “MAX 7400 lbs” at “120 PSI COLD” markings for rating compliance.
8. KIC Part Number (e.g. WH22501-2) to be marked on disc.

Furthermore, KIC Wheels have undergone the following testing to ensure durability and performance.

Test reports are available. The following testing regimen is part of KIC's testing requirement:

1. SAE J267 - Cornering and radial fatigue testing is conducted in an A-to-B comparison using competitive benchmarks to ensure robustness and integrity of the KIC wheel to known industry standard wheels. KIC wheels meet and exceed the SAE J267 fatigue cycle requirements.
2. ASTM B117 - Salt Spray testing has been conducted on the e-coat (500 hours). The powder top coat will give 2000 hours.
3. ASTM D3359 – KIC conducts paint hardness testing to ensure the paint is durable and processed consistently.
4. ASTM D3170 – Gravelometer test ensures KIC wheel paint is chip resistant from normal road debris.



**KIC LLC**

**3800 Fruit Valley Road**

Vancouver, WA 98660

P: 360-823-4440

F: 360-823-4441

[kic-group.com](http://kic-group.com)

5. KIC wheels are supplied with a TR572 rim valve pre-installed. KIC offers gloss white, gray, black, and silver powder top coat colors that cover a zinc phosphate base and an e-coat middle layer.

KIC brake drums and hub/drum assemblies are covered by a lifetime limited product warranty that covers defects in material and workmanship. KIC steel wheels are covered by a Five year warranty from defects in workmanship and materials, excluding finish. All warranties are administered by KIC from our Vancouver, WA office. Please see Attachment "A" for the hub and drum warranty information and Attachment "B" for the KIC steel wheel warranty.

If any questions arise or if more information is necessary, please do not hesitate to give us a call.

Regards,

Dr. Omar J. Fakhoury  
Senior VP of Operations  
KIC LLC  
(360) 823-4457 Office