



TechniClean®

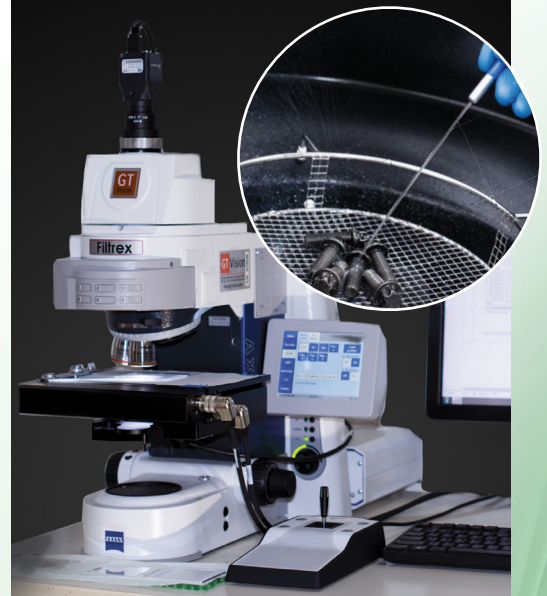
TECHNICLEAN™

FASTENERS FOR TECHNICAL CLEANLINESS.

As pneumatic, hydraulic and powertrain systems become more complex, they also become more susceptible to failures resulting from particle contamination. These failures can lead to excessive repair or replacement costs, which are driving manufacturing companies to seek out solutions to help prevent harmful particles from entering the system. To support these efforts, Acument Global Technologies developed and defined our own unique standard and classes of clean fasteners under the brand name

TECHNICLEAN™.

Conventional fasteners are bulk processed through equipment shared with other products, meaning the job is only as clean as the dirtiest part. Furthermore, many fasteners have specified finishes that aren't conducive to meeting technical cleanliness requirements. **TECHNICLEAN™** fasteners are manufactured with Acument Global Technologies industry leading processes and fastener finishes designed to help provide and ensure cleanliness levels superior to that of conventional fasteners.



FEATURES

- ▶ Innovative Acument TECHNICLEAN™ process designed to meet your cleanliness needs
- ▶ Standard Acument TECHNICLEAN™ 600 and TECHNICLEAN™ 900 or custom defined particle cleanliness service levels
- ▶ Clean finish options include phosphate and zinc electroplate
- ▶ Custom finish options can be evaluated upon request
- ▶ Routine cleanliness inspections based on ISO 16232

BENEFITS

- ▶ Helps minimize the risk of damage caused by particle contamination
- ▶ Provides for a consistent and defined level of product cleanliness quality with or without finish options
- ▶ Meets defined corrosion resistance and coefficient of friction requirements
- ▶ Helps ensure a consistent lowest possible level of harmful particles

IDEAL APPLICATIONS

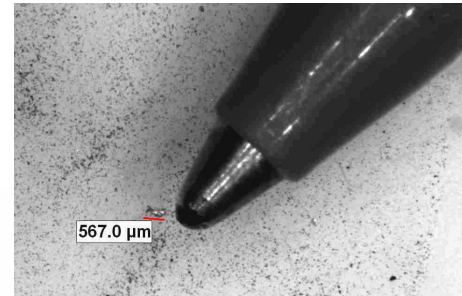
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|---------------|-----------------|------------------------|------------------------|---------------------------|
| ▶ Oil pumps | ▶ Transmissions | ▶ Fuel systems | ▶ Power transfer units | ▶ Transfer cases |
| ▶ Water pumps | ▶ Turbochargers | ▶ Differential modules | ▶ Brake systems | ▶ Electric steering gears |





SPECIFICATIONS

Acument has developed TECHNICLEAN™ classes 600 and 900 to meet standard industry cleanliness requirements. Each of these classes is specifically designed to meet requirements for largest allowable particle sizes and is compliant with ISO 16232 inspection procedures that are recognized throughout the automotive, transportation, and heavy equipment industries. Other design or finish requirements may also be met with the TECHNICLEAN™ custom class. To schedule a design review to determine your cleanliness requirement needs, please contact an Acument Global Technologies Application Engineer or Account Manager.



567.0 µm particle in comparison to a ball point pen tip.

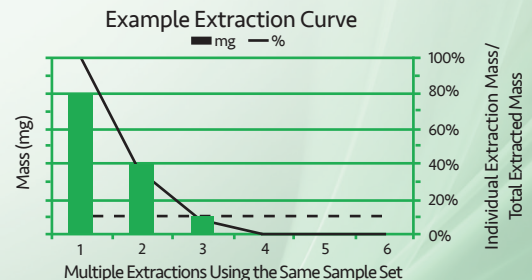
CLEANTEK™ FINISH CODE	FINAL DESCRIPTION	COEFFICIENT OF FRICTION	CORROSION RESISTANCE (HRS.)	CLEANTEK™ CLASS (LARGEST PARTICLE SIZE µm)		
				600	900	CUSTOM
A	Phosphate basecoat + friction control lubricant	0.09 - 0.14	1 RR	✓	✓	✓
B	Zinc electroplate + friction control lubricant	0.12 - 0.18	120 WC	✓	✓	✓
Other ²						✓

¹TECHNICLEAN™ fastener finishes are approved based on how conducive they are to meeting cleanliness requirements.

²Other finishes may be evaluated upon request. However, phos+oil and zinc flake coatings are currently not possible.

EFFECTIVE CLEANLINESS INSPECTIONS

Acument ensures the effectiveness of cleanliness inspections by carrying out the qualification testing required by ISO 16232 and VDA 19.1 – generally referred to as extraction or declining curve testing. To prove that the maximum number of contaminant particles has been extracted, a sampling of fasteners is subjected to repeated extractions. From this testing, a routine inspection procedure is developed and applied to each unique part.



RECOMMENDED ANNOTATION FORMAT

It is recommended that customers specify the need for a TECHNICLEAN™ class of fastener using one of the annotation example formats listed below:

*Fastener finish and cleanliness requirements per Acument® Global Technologies TECHNICLEAN™ 900-A.
Must conform to Acument® Global Technologies TECHNICLEAN™ 600-B.*

Fastener finish: as prescribed by the fastener manufacturer.

Coefficient of friction: 0.09 - 0.14 | Corrosion resistance: 24 hrs. to red rust | Cleanliness level: X= 1000 µm per ISO 16232