
SUPPLIER BURR, NICKS and DINGS MEMO

6/3/2024

Dear Supplier,
VACCO continues to see rejections for burrs, nicks and dings on manufactured metal and plastic parts coming from Suppliers.

We request that you perform 100% inspection and remove all burrs, nicks and dings before shipping parts. This includes all edges (filet, intersect or outer edges), holes, threads (internal and external) and flash at mold lines (plastic).

Burrs, Nicks and Dings are rejected whether it is listed as a note on the drawing or not. There should always be a deburring operation on your Shop Traveler (Work Order) somewhere before the final inspection operation.

If you do not have a deburr procedure or know the definition and how to inspect for them, the following Burr Memo defines burrs, inspection methods and also has pictures for your information and guidance.

Reminder, besides nicks and dings, burrs may also be caused by handling damage so, we suggest that you package your product to prevent parts from being damaged during shipping.

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When performing visual inspection, the following are standards that VACCO inspection team generally uses unless the drawing calls out specific inspection requirements:

- Fixed white lighting in the inspection area shall be a white light intensity of 100 foot-candles minimum when measured at the inspection surface for the parts. The lighting shall be designed and arranged to provide shadow free and glare free illumination of the part surface to be inspected. Lighting that is not working must be reported to Maintenance immediately.
- Handheld white lights, mirrors, borescopes (rigid and non-rigid), micrometers, calipers, needle point dial depth gauges and other optical devices may be utilized.
- Personnel performing visual inspection shall be proficient in the operation of all visual inspection equipment and techniques and be capable of interpreting engineering drawings, standards and inspection instructions that pertain to the parts being inspected.
- Personnel performing visual inspection shall qualify for certain near vision requirements.
- Visual inspections are unmagnified unless required by drawing. Magnification can be used as an aid in the evaluation of an observed condition. Parts shall be inspected from various angles and directions to assure the detection of all imperfections. Holes shall be inspected at both ends when possible. In areas when visual access results in a line of sight viewing angle greater than 45 degrees from a line perpendicular to the surface being inspected, or where the surface to be inspected extends beyond a depth to opening ratio greater than 1, or where other limitations prevent a valid inspection, borescopes and other special aids shall be used. Inspection of holes less than 0.25 inches in diameter shall be confined to the edges.

Burrs are defined as, extraneous or non-functional material left on, or extending from a surface, after an operation which appears to have the possibility of coming loose or detaching. Operations may include tasks such as removing material, cutting, or modifying a current surface condition. Burrs may also result from installation in fixtures or mishandling. The following inspection techniques are highly recommended and should be used to inspect for burrs:

1. Inspection Level 1

Applies to burr sensitive parts. Burr inspection method used for these parts:

- Inspection at 10X to 15X magnification
- Integral Lighting (meaning light goes through the lens) – purpose is to get light further down into hard to inspect areas such as, inside a tube

2. Inspection Level 2

Features/characteristics include:

- Any machined feature that intersects another characteristic- such as drilled holes, threads, or a machined edge
- Surface finishes 32 RMS or better
- Dimensions with a total tolerance up to 0.005 inch.
- Angles with total tolerance equal to or greater than 1/2 degree to 4 degrees

Burr inspection method:

- Inspection at 7X to 10X magnification
- Adequate lighting (~100 ft-candles minimum) or, inspection tooling with integral lighting

3. Inspection Level 3

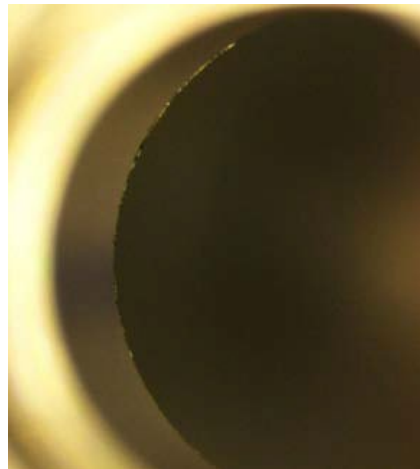
Inspect for burrs using the follow method:

- Inspect with unaided eye (no magnification)
- Adequate lighting (~100 ft-candles) minimum
- May physically “feel” burrs
- NOTE: If a burr is suspected ONLY by using feel and is not visible with the unaided eye, use up to 7X magnification to visually see evidence of a burr. If no evidence is visually seen under magnification, no rejectable burr exists.

For your reference, the following photographs are examples of acceptable and rejected parts with burrs:



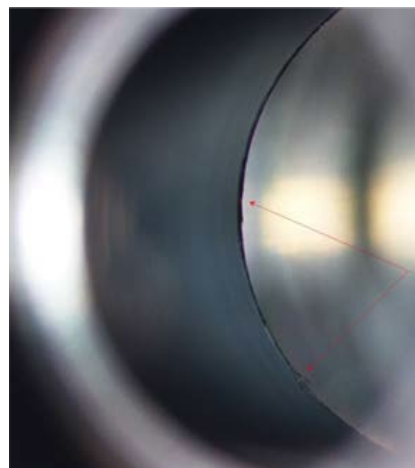
Acceptable Part Example



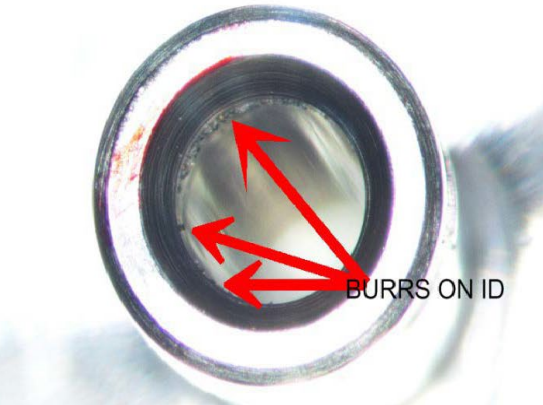
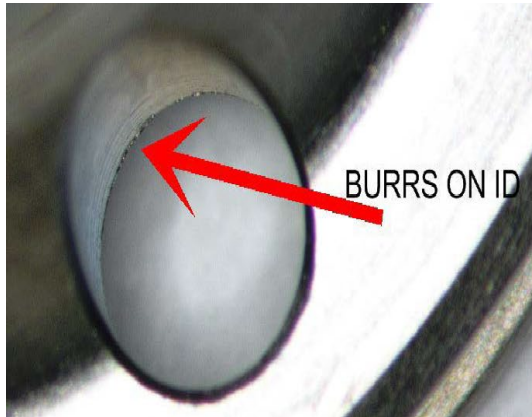
Rejected Part Example



Acceptable Part Example

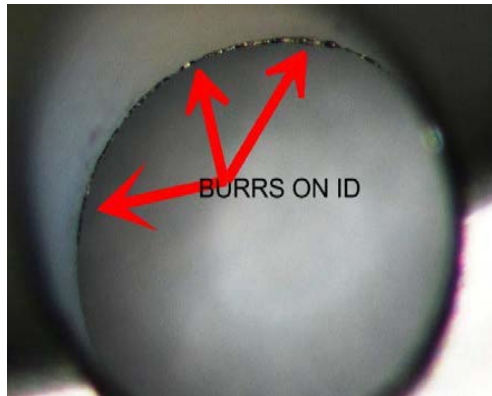
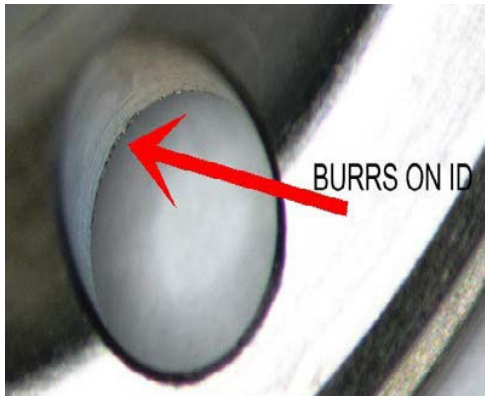


Rejected Part Example



Note: This condition is similar to left over material from weld operations.

Burrs identified on this location of a part can often be the result of the de-burring process and may be an indication of worn tooling or a process breakdown.



Again, as a VACCO supplier, we value your support and assistance. If you have further questions please direct your calls to our Supplier Quality Team.

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