

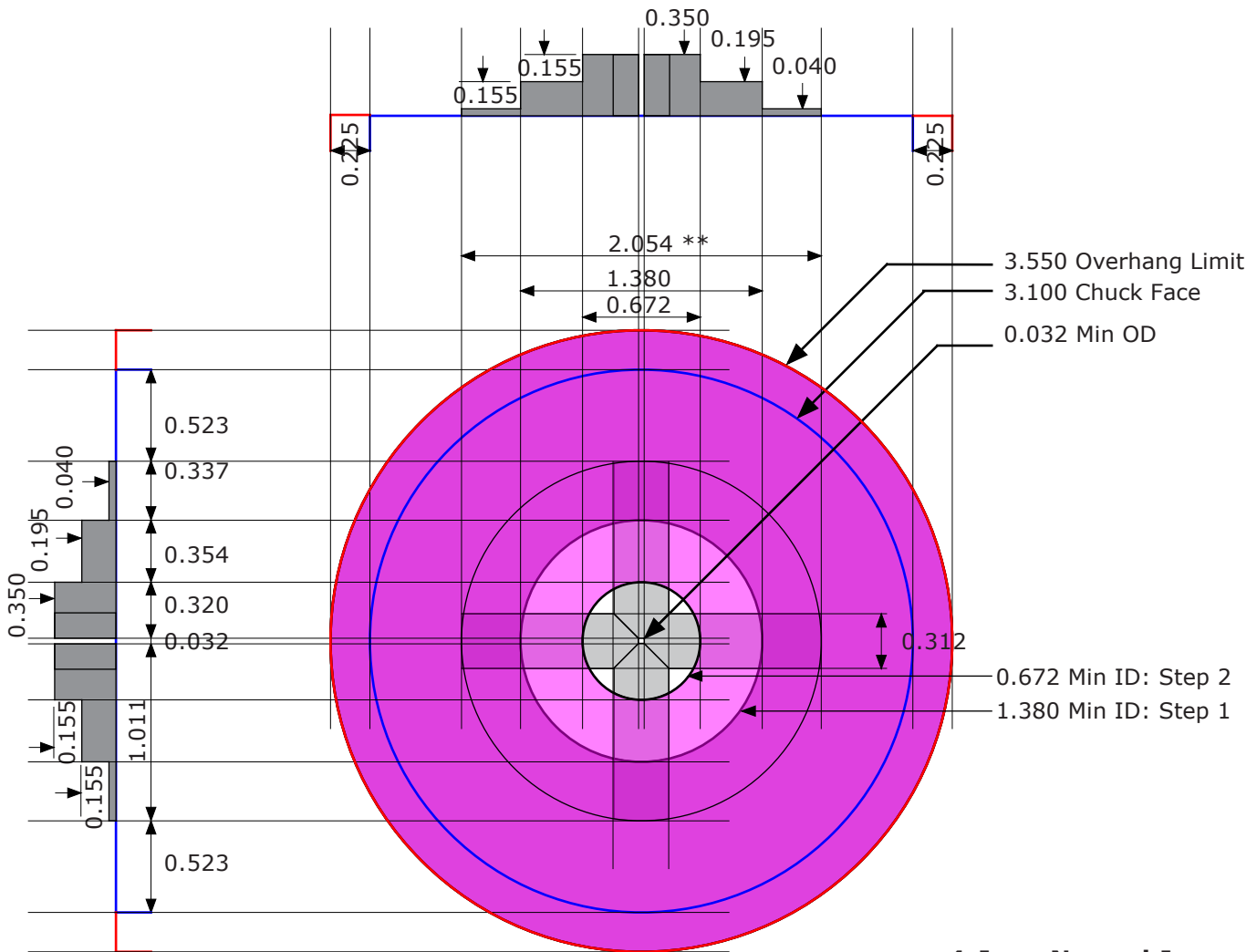
TIP 105 — 4-Jaw Independent Chuck Holding Dimensions/Jack Pantry

Sherline user, Jack Pantry, recently submitted a tip for machining a chuck platform for turning thin parts (TIP 102). He followed that with an assessment of the minimum and maximum opening ranges using a 3.1" 3-jaw, self-centering chuck (Tip 104). This write-up details the opening ranges for holding cylindrical,

square, and rectangular parts with a Sherline 3.1" 4-jaw independent chuck. Dimensions are included for the jaws in both the standard position and the reverse position, as well as a summary of the clamping ranges.

Thank you,
Sherline Products Inc.

4-Jaw Chuck, Normal Jaws, Min Circle



** The 2.054 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

When at or near the minimum dimensions, little if any offset is available.

4-Jaw, Normal Jaws

OD Clamping:

Min OD: 0.032

Max OD: 1.528

ID Clamping, Step 1:

Min ID: 1.380

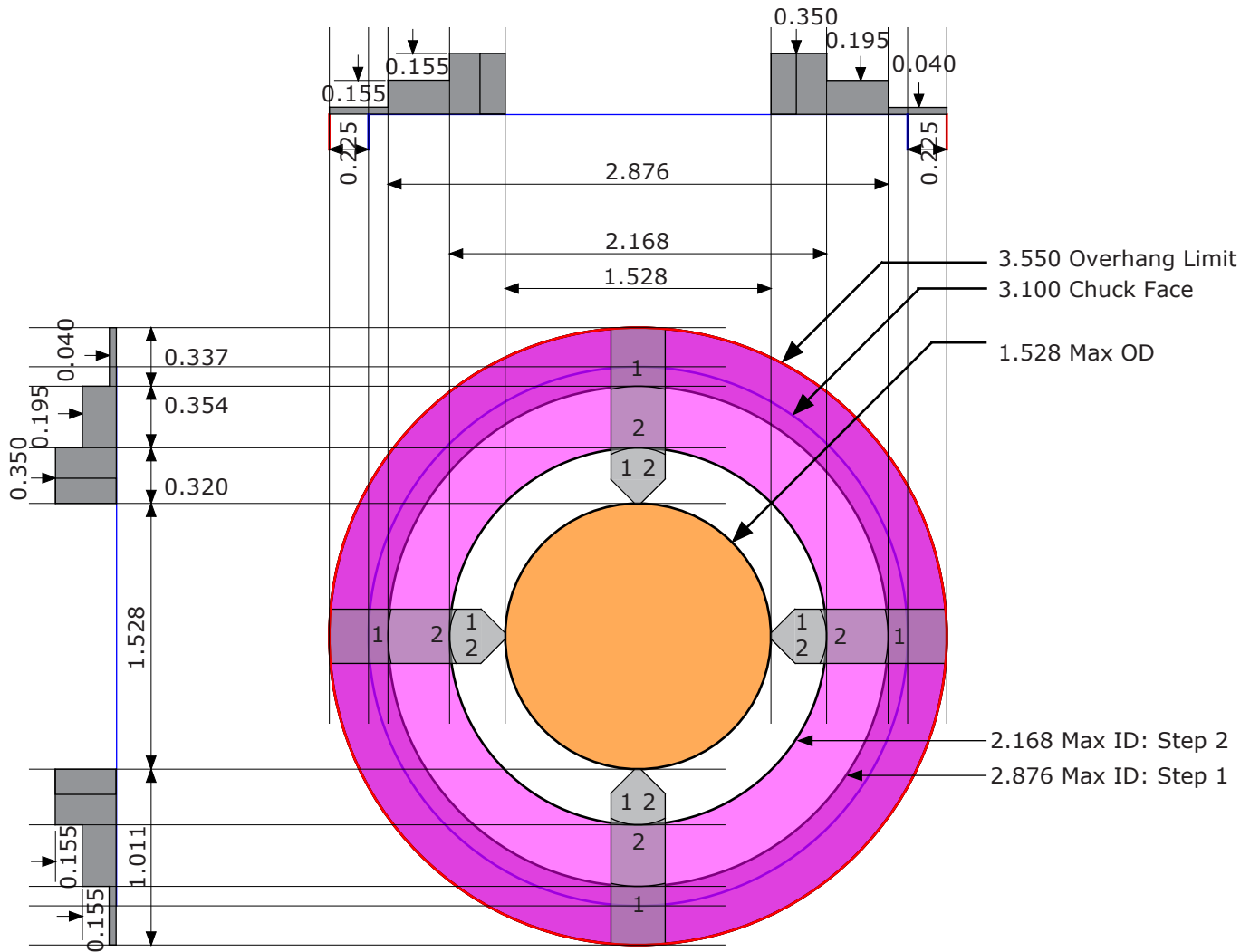
Max ID: 2.876

ID Clamping, Step 2:

Min ID: 0.672

Max ID: 2.168

4-Jaw Chuck, Normal Jaws, Max Circle



When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

4-Jaw, Normal Jaws

OD Clamping:

Min OD: 0.032

Max OD: 1.528

ID Clamping, Step 1:

Min ID: 1.380

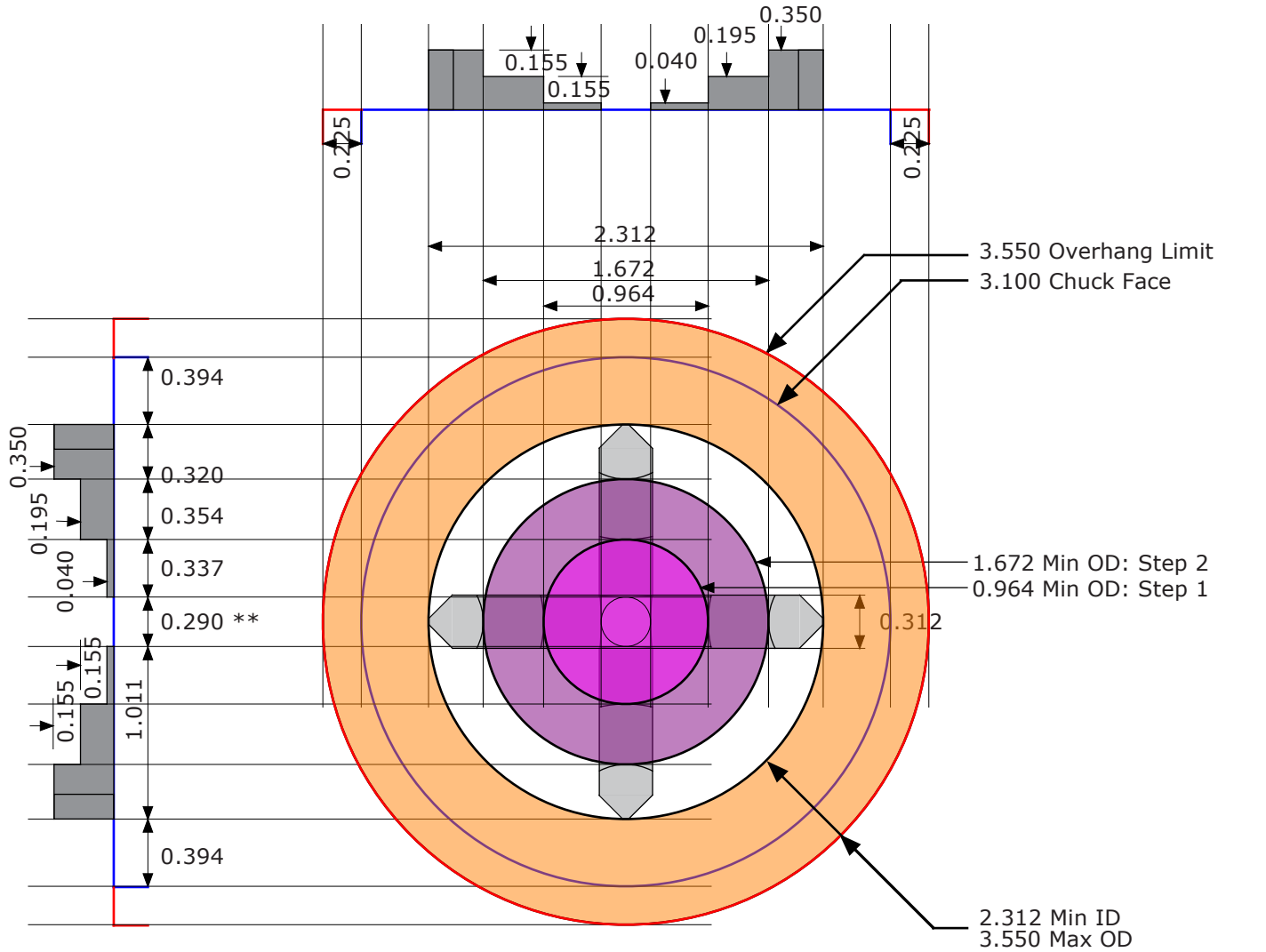
Max ID: 2.876

ID Clamping, Step 2:

Min ID: 0.672

Max ID: 2.168

4-Jaw Chuck, Reverse Jaws, Min Circle



** The 0.290 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

When at or near the minimum dimensions, little if any offset is available.

4-Jaw, Reverse Jaws OD Clamping, Step 1:

Min OD: 0.964
Max OD: 2.202

OD Clamping, Step 2:

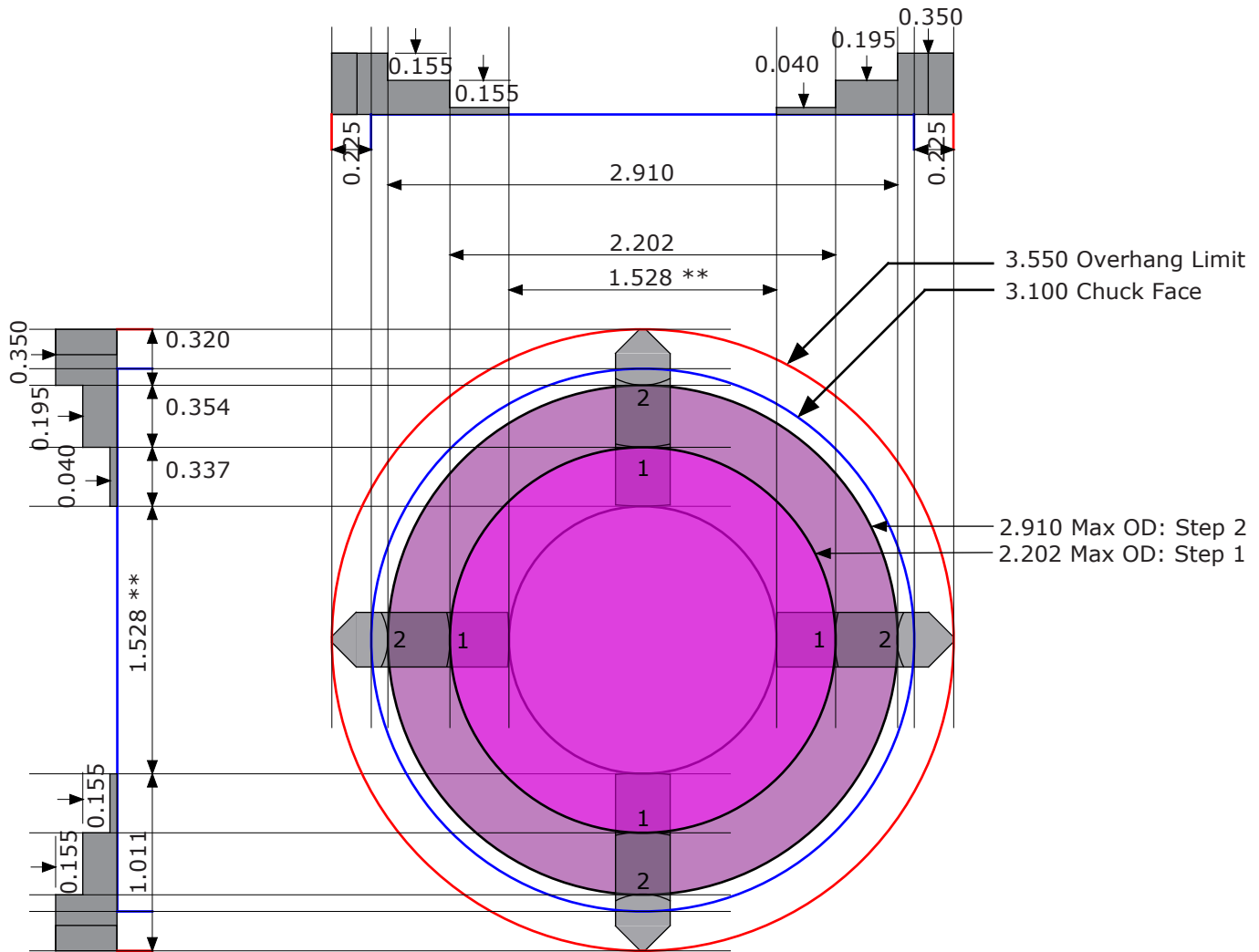
Min OD: 1.672
Max OD: 2.910

ID Clamping:

Min ID: 2.312
Max OD: 3.550

ID: (minus 2 x wall thickness)

4-Jaw Chuck, Reverse Jaws, Max Circle



** The 1.528 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

4-Jaw, Reverse Jaws

OD Clamping, Step 1:

Min OD: 0.964

Max OD: 2.202

OD Clamping, Step 2:

Min OD: 1.672

Max OD: 2.910

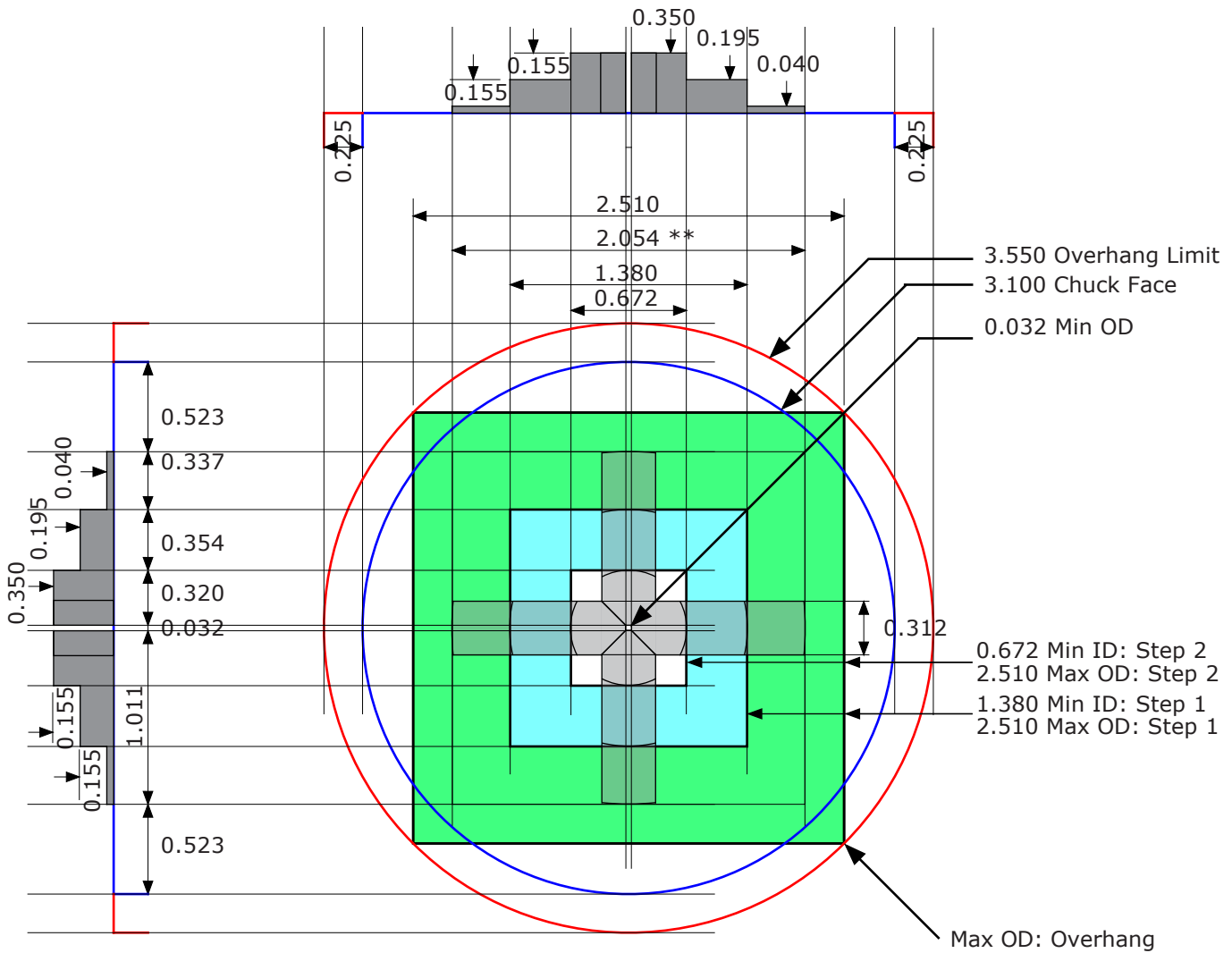
ID Clamping:

Min ID: 2.312

Max OD: 3.550

ID: (minus 2 x wall thickness)

4-Jaw Chuck, Normal Jaws, Min Square



** The 2.054 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

When at or near the minimum dimensions, little if any offset is available.

4-Jaw, Normal Jaws OD Clamping:

Min OD: 0.032 x 0.032
Max OD: 1.528 x 1.528

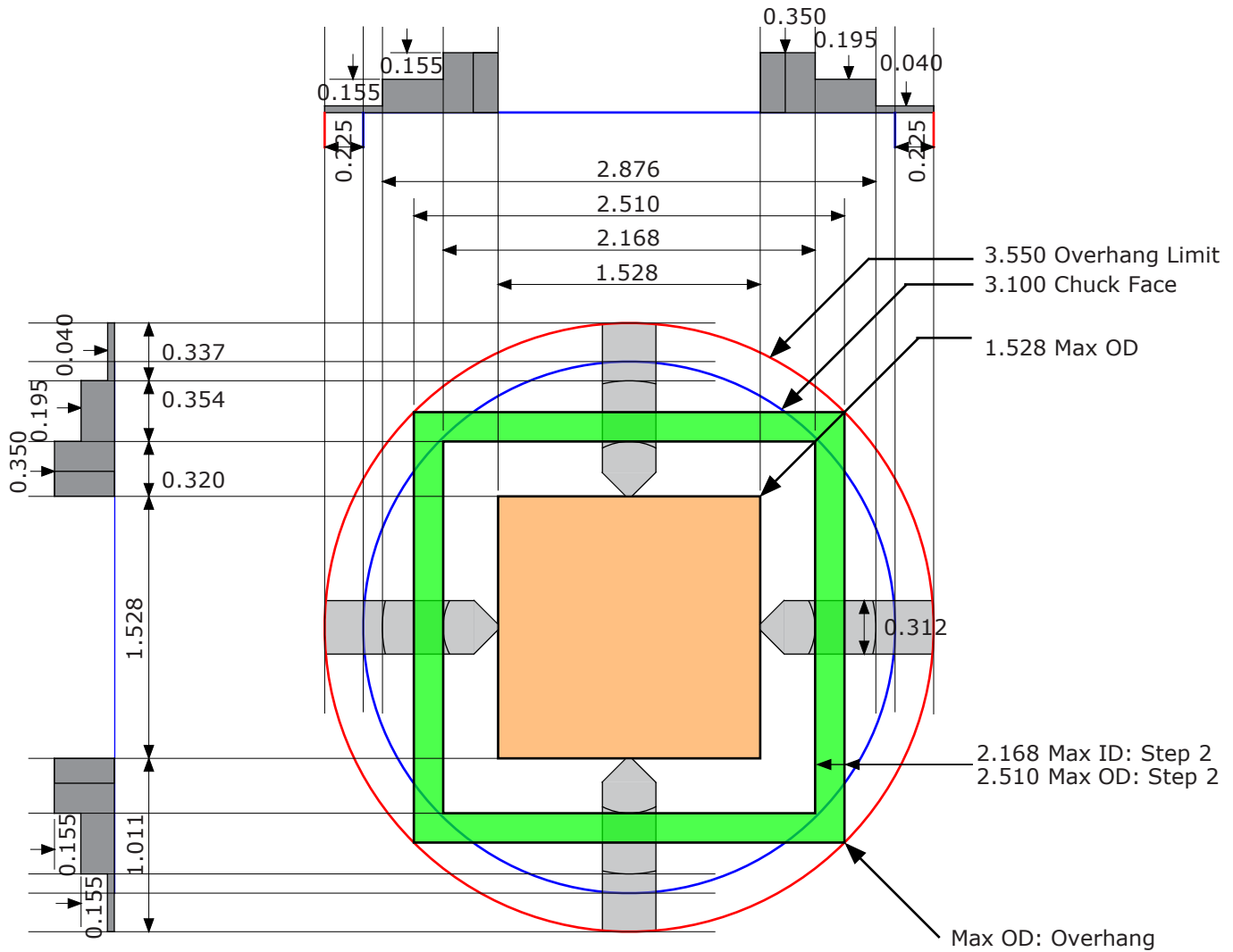
ID Clamping, Step 1:

Min ID: 1.380 x 1.380
Max ID: 2.876 x 2.876

ID Clamping, Step 2:

Min ID: 0.672 x 0.672
Max ID: 2.168 x 2.168

4-Jaw Chuck, Normal Jaws, Max Square



When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

4-Jaw, Normal Jaws OD Clamping:

Min OD: 0.032 x 0.032
Max OD: 1.528 x 1.528

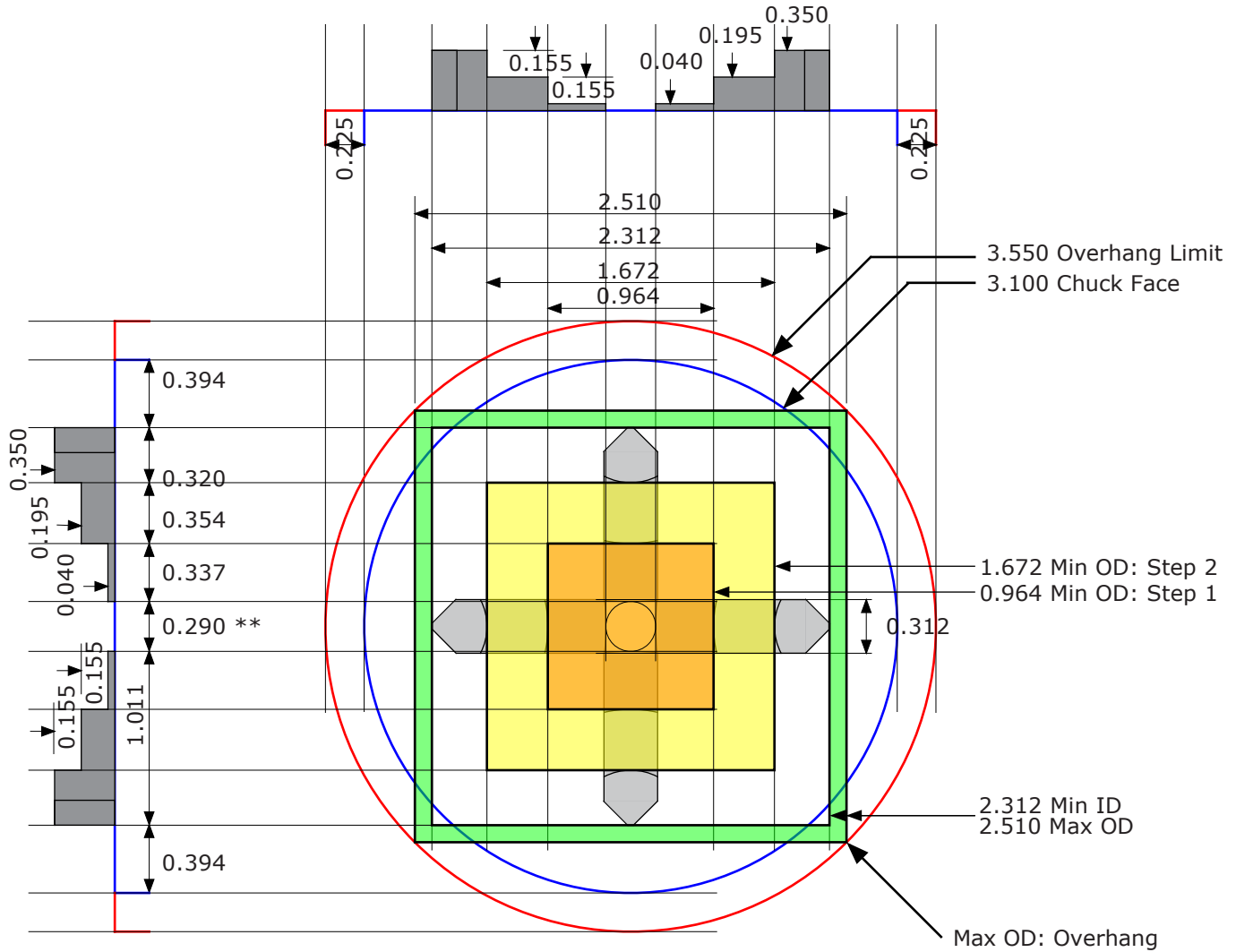
ID Clamping, Step 1:

Min ID: 1.380 x 1.380
Max ID: 2.876 x 2.876

ID Clamping, Step 2:

Min ID: 0.672 x 0.672
Max ID: 2.168 x 2.168

4-Jaw Chuck, Reverse Jaws, Min Square



** The 0.290 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

When at or near the minimum dimensions, little if any offset is available.

4-Jaw, Reverse Jaws

OD Clamping, Step 1:

Min OD: 0.964 x 0.964

Max OD: 2.202 x 2.202

OD Clamping, Step 2:

Min OD: 1.672 x 1.672

Max OD: 2.910 x 2.910

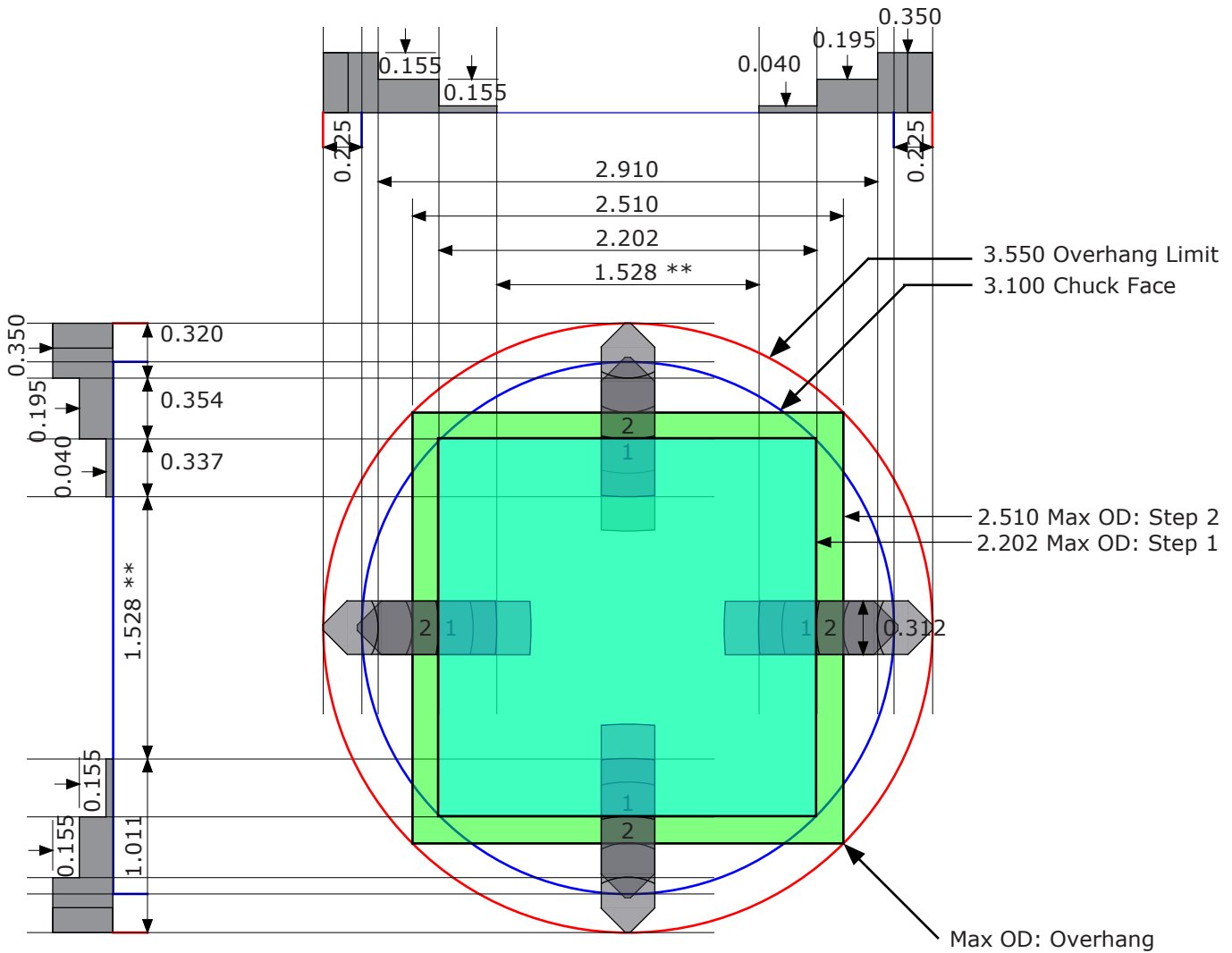
ID Clamping:

Min ID: 2.312 x 2.312

Max OD: 3.550 x 3.550

ID: (minus 2 x wall thickness)

4-Jaw Chuck, Reverse Jaws, Max Square



** The 1.528 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

4-Jaw, Reverse Jaws

OD Clamping, Step 1:

Min OD: 0.964 x 0.964

Max OD: 2.202 x 2.202

OD Clamping, Step 2:

Min OD: 1.672 x 1.672

Max OD: 2.910 x 2.910

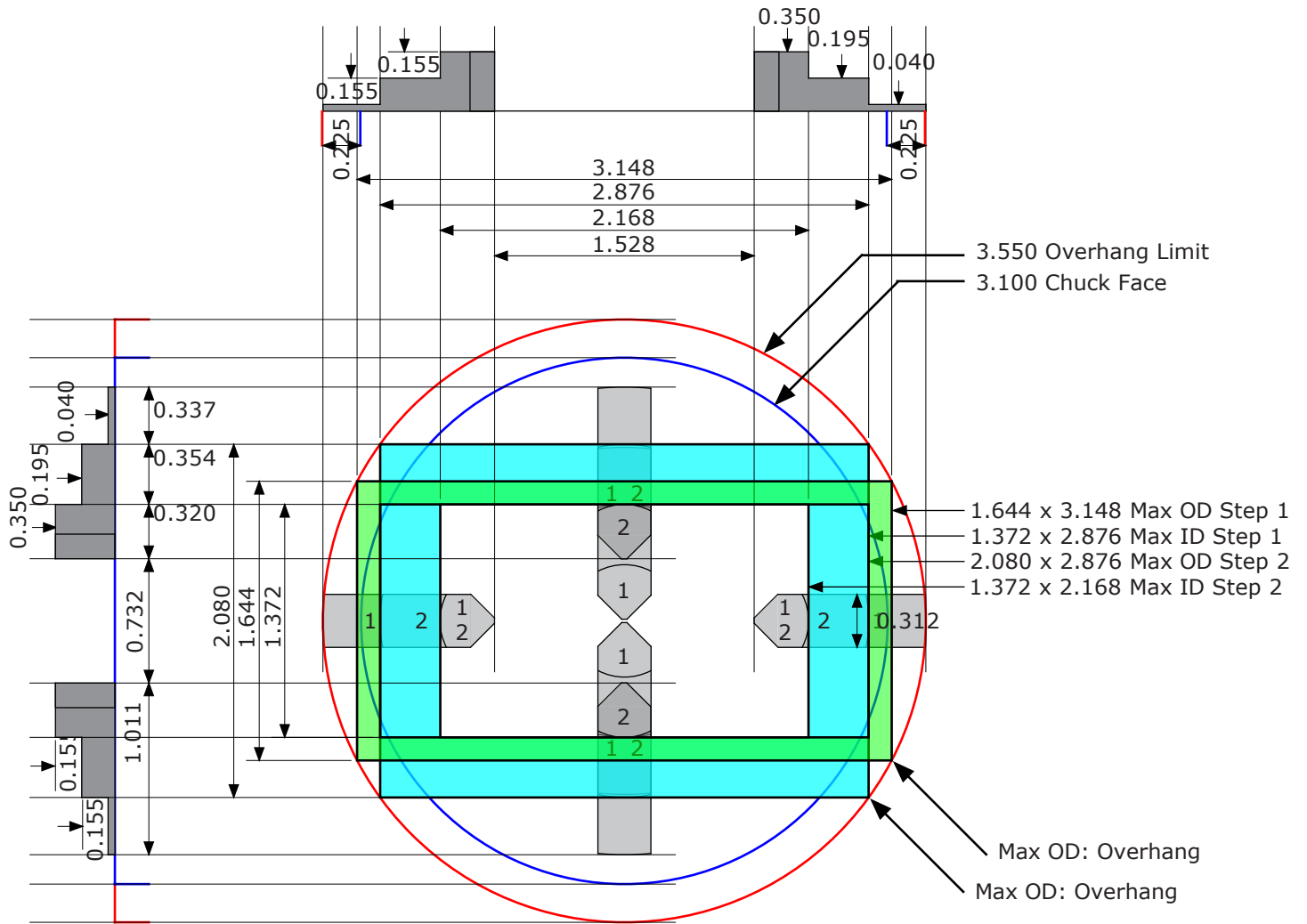
ID Clamping:

Min ID: 2.312 x 2.312

Max OD: 3.550 x 3.550

ID: (minus 2 x wall thickness)

4-Jaw Chuck, Normal Jaws, Max Rectangle

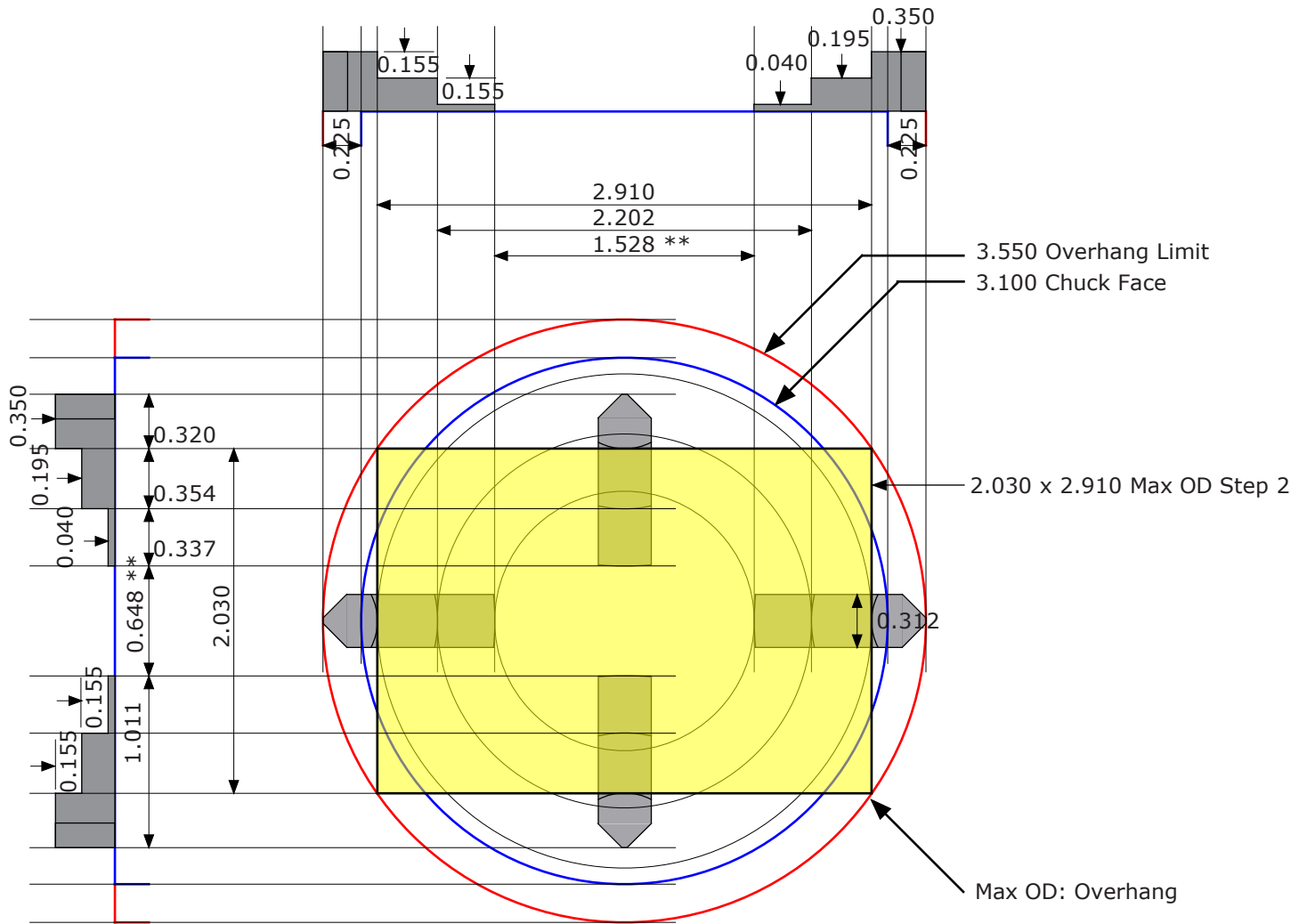


When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

Any smaller Rectangle between the Rectangle shown and the Square is also possible, as long as the corners do not extend beyond the Overhang Limit.

- 4-Jaw, Normal Jaws**
- OD Clamping:**
Min OD: 0.032 x 0.032
Max OD: 1.528 x 1.528
 - ID Clamping: Step 2:**
Min ID: 0.672 x 0.672
Max ID: 2.168 x 2.168
 - ID Clamping: Step 1:**
Min ID: 1.380 x 1.380
Max ID: 2.876 x 2.876

4-Jaw Chuck, Reverse Jaws, Max Rectangle



** The 1.528 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

Any smaller Rectangle between the Rectangle shown and the Square is also possible, as long as the corners do not extend beyond the Overhang Limit.

4-Jaw, Reverse Jaws

OD Clamping: Step 1:

Min OD: 0.964 x 0.964

Max OD: 2.202 x 2.202

OD Clamping: Step 2:

Min OD: 1.672 x 1.672

Max OD: 2.910 x 2.910

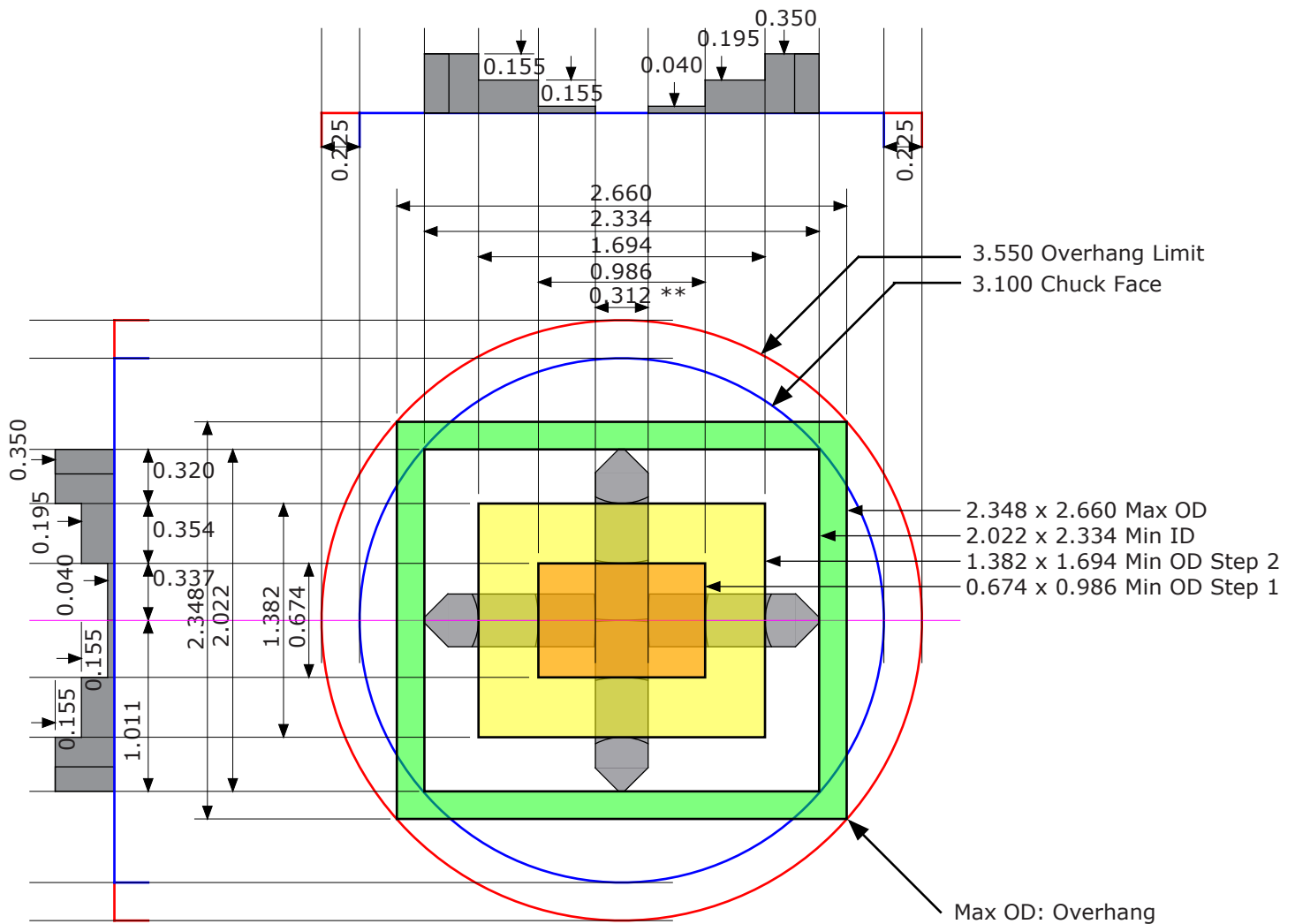
ID Clamping:

Min ID: 2.312 x 2.312

Max OD: 3.550 x 3.550

ID: (minus 2 x wall thickness)

4-Jaw Chuck, Reverse Jaws, Min Rectangle



** The 0.312 dimension is for Reference Only.

When clamping any item in this chuck, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225. This maximum can only be exceeded when using risers.

Any larger Rectangle between the Rectangle shown and the Square is also possible, as long as the corners do not extend beyond the Overhang Limit.

4-Jaw, Reverse Jaws

OD Clamping: Step 1:

Min OD: 0.964 x 0.964

Max OD: 2.202 x 2.202

OD Clamping: Step 2:

Min OD: 1.672 x 1.672

Max OD: 2.910 x 2.910

ID Clamping:

Min ID: 2.312 x 2.312

Max OD: 3.550 x 3.550

ID: (minus 2 x wall thickness)

There is an anomaly with the 4-jaw independent chuck, when the jaws are reversed.

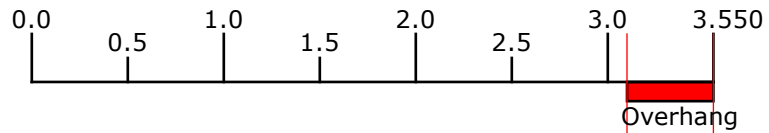
Any time either pair of jaws are 0.312" or more apart, the other pair of jaws can be back-to-back. As a result, a rectangular object can be clamped with:

- a minimum OD of 0.674 x 0.986 for Step 1
- a minimum OD of 1.382 x 1.694 for Step 2
- a minimum ID of 2.022 x 2.334, with a maximum OD of 2.348 x 2.660

When the back-to-back jaws get closer to 0.290" apart, the other pair of jaws can be decreased from 0.312" to 0.290" apart, due to the arc on the back of each jaw. When both jaws are 0.290" apart, this is the same as Reverse Jaw Min Square.

Sherline 4-Jaw Chuck Clamping Range Summary

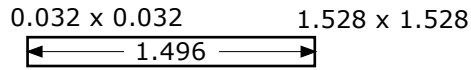
When clamping any item in these chucks, no part of the jaws, nor any part of the item itself, can extend beyond the face of the chuck by more than 0.225, except when using risers.



4-Jaw OD Clamping

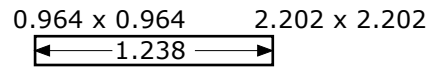
Normal Jaws:

Minimum OD: 0.032 x 0.032
Maximum OD: 1.528 x 1.528



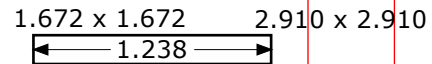
Reverse Jaws, Step 1:

Minimum OD: 0.964 x 0.964
Maximum OD: 2.202 x 2.202



Reverse Jaws, Step 2:

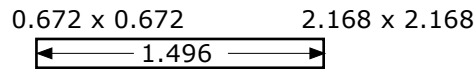
Minimum OD: 1.672 x 1.672
Maximum OD: 2.910 x 2.910



4-Jaw ID Clamping for pipe

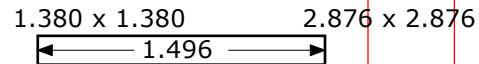
Normal Jaws, Step 2:

Minimum ID: 0.672 x 0.672
Maximum OD: 2.168 x 2.168



Normal Jaws, Step 1:

Minimum ID: 1.380 x 1.380
Maximum OD: 2.876 x 2.876



Reverse Jaws:

Minimum ID: 2.312 x 2.312
Maximum OD: 3.550 x 3.550
Max ID: (Minus 2 x wall thickness)

