This attachment delineates the essential variables for thickness measurements using an Olympus 38DL Plus as required by ASME Sec. V Article 5 Table T-522.

<table>
<thead>
<tr>
<th>Ultrasonic instrument(s)</th>
<th>Olympus 38DL Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search unit type(s), frequency(ies), and element size(s), shape(s)</td>
<td>Any dual element transducer manufactured by Olympus for use with the Olympus 38DL-Plus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Search Unit Type</th>
<th>Frequency Range</th>
<th>Diameter</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Element</td>
<td>1-10MHz</td>
<td>D &lt; .5&quot;</td>
<td>Round</td>
</tr>
<tr>
<td>Single Element</td>
<td>1-10MHz</td>
<td>D &lt; .5&quot;</td>
<td>Round</td>
</tr>
</tbody>
</table>

Material Types and configuration: This unit can be used to measure thickness on ferrous and non-ferrous plate, sheet, bar, shapes, strip, seamless & welded, forged, or centrifugal cast, pipe & tubing, castings, forgings, E.R.W. tube, wrought fittings.

The surface from which the examination shall be performed: Examination may take place from any accessible surface.

Technique(s) (straight beam, angle beam, contact, and/or immersion): Technique is straight beam, dual beam, contact method.

Angles and mode(s) of wave propagation: N/A

Calibration [calibration block(s) and technique(s)]: Calibration standards as described in Section 7.0 “Calibration Standard”. The calibration step blocks shall have dimensions certified by NIST or measured with equipment calibrated and certified to NIST.

Direction and extent of scanning: Meas. shall be the avg. of three readings within 1” circle.


Scan overlap (decrease only): Meas. shall be the avg. of three readings within 1” circle.

Method for sizing indications: N/A

Computer enhanced data acquisition: N/A

Personnel performance requirements: N/A

Surface Condition (examination surface, calibration blocks): Surface must be free of dirt, grease, oil, loose paint.

Couplant: brand name or type: Magnaflux Ultragel II

Post-examination cleaning technique: Wipe couplant away with clean cloth

Automatic alarm and/or recording equipment, when applicable: N/A

Records, including minimum calibration data to be recorded (e.g., instrument settings): Records must include description of the item, a map of locations where thicknesses were taken, and record data items from the procedure (Section 12 and Form 1).

Record copy signed by David Harvey, Rev. 1, 11/28/2018

Level III Date