Accredited Standards Committee H35 ALUMINUM and ALUMINUM ALLOYS ANSI Accredited Standards Committee	Secretariat: The Aluminum Association, Inc. 1400 Crystal Drive, Suite 430 Arlington, VA 22202 Telephone: (703) 358-2978 e-mail: smuhamed@aluminum.org

DATE: June 6, 2025

TO: Max Dallman
mdallman@blueskyinnovations.com

FROM: Sam Muhamed
Sr. Manager, Standards & Technology
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SUBJECT: RE: ANSI H35.2 Interpretation Question

Dear Mr. Dallman,

The question that you submitted was reviewed by our Technical Committee on Product Standards. Your question, and our response to it, are as follows:

Your Question:

I have a question about ANSI H35.2-2017, and possibly 2024 however I do not have a copy. Specifically, Tables 12.8 and 12.25 Straightness of Extruded and Drawn Aluminum Tube.
Consider a Drawn or Extruded Tube that is 2" in diameter and 3' in length. The maximum allowed deviation according to the tables would then be ".010 x Measured Length, ft." What I am having trouble with is the statement: "IN TOTAL LENGTH OR IN ANY MEASURED SEGMENT OF ONE FT. OR MORE OF TOTAL LENGTH." My interpretation has been along the lines of how ASME Y14.5 describes straightness on page 93 in Fig. 5-4: "Specify Straightness Per Unit Length with Specified Total Straightness.." Such that any 1' section that deviates more than .010" falls outside of the allowable deviation. Is this the correct interpretation? Or is the "D" as shown in the drawn figure implying that the entire length is to be evaluated only for the Maximum (in this case .030") ?

Response:

For a 3' length drawn or extruded tube for which ANSI H35.2 determines an allowable deviation from straightness of "**0.010 × Measured length, ft.**", the below conditions all apply simultaneously alongside all relevant footnotes:

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- For any 1' section within its length, the maximum allowable straightness deviation is 0.010".
- For any 2' section within its length, the maximum allowable straightness deviation is 0.020".
- For the entire 3' length, the maximum allowable straightness deviation is 0.030".

Further key points to note are:

1. Given straightness tolerances do not apply to drawn tube in O-temper
2. Given straightness tolerances do not apply to extruded tube in TX510 or TX511 tempers having wall thickness less than 0.095"
3. For extruded tube in O or TX510 temper, straightness tolerances shall be as agreed between purchaser and vendor at the time the contract or order is entered
4. For measuring straightness in drawn or extruded tube for tolerancing:
    a. Straightness must be measured such that the weight of the piece on a flat surface minimizes the deviation
    b. Straightness must be met in all orientations, including those that are not free standing or self supporting.

The following video resources may be helpful in further understanding aluminum extrusion tolerances:

1. https://youtube.com/playlist?list=PLJhPoDFvCALInwiy3mll0J9jI46l_rcgb&si=pYNLXR26PHkSFSyS
2. https://youtu.be/ghX289YwMFI?si=N4gxi32aM_r-bPO4

Since we are not involved in the development of ASME Y14.5, we are unable to provide a comparison between that standard and ANSI H35.2. A different methodology for straightness may apply in ASME Y14.5 that cannot be directly correlated to the one in ANSI H35.2.

With best regards,

Sam Muhamed

cc: TCPS Members
ASC H35 Members
Janis Penman – Baker & Hostetler