

Comments on Item 360-3

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Position: First, I am opposed to the adoption of Item 360-3 as written, because:

1. The definition is for a “batching system,” which is a term that is not used in Handbook 44, so the definition is not needed; and
2. The definition is incorrect and incomplete.

The purpose of a definition in Handbook 44 is to clearly identify and distinguish the categories of scales or meters to which requirements apply. This proposed definition does exactly the opposite; it obscures the delineation among categories of scales and meters. The definition does not clearly identify the scales to which the definition applies. Mr. Richard Suiter, the submitter of this proposal, should submit a complete listing of the scales and meters to which he anticipates that this definition should apply.

Option 1: I request that the item be changed from a voting item to developmental or withdrawn, so that the problems with the definition can be resolved before a definition is submitted for vote.

Option 2: The existing requirements in the Scales Code for batching **scales** (not systems) apply to mechanical scales. How many new mechanical batching scales have been manufactured recently, if any? How many old mechanical batching scales are still in use? Perhaps the two references to mechanical batching scales are obsolete. If no new mechanical batching scales are being manufactured and, presumably, the few mechanical batching scales that are still in use already comply with Handbook 44, then the requirements for batching scales may not be needed. There may be other Handbook 44 requirements that are obsolete (e.g., the tolerances for unmarked, mechanical postal scales). Establish an NCWM action to delete specific obsolete requirements from Handbook 44. In the case of the two batching scale references in the Scales Code, the S&T Committee should propose that these two references are considered obsolete and that the requirements will be deleted in year 20XX (for example, 2019) and add a statement to the Handbook 44 paragraphs that states, “(Obsolete Requirement: The reference to batching scales is considered obsolete. This reference will be deleted in 2019.)” The proposal to delete a requirement after a short period of time will allow weights and measures officials to alert the S&T Committee if there may be a potential problem to delete specific requirements from Handbook 44. This process will allow obsolete requirements to be deleted and take a step to keep Handbook 44 requirements relevant to equipment that is still in use in the commercial measurement system.

Explanation: A definition of a type of scale should clearly identify and distinguish the scales to which it applies. The proposed definition will create ambiguity in the proper classification of hopper scales, grain hopper scales, batching scales and automatic bulk weighing systems. This ambiguity will cause weights and measures officials to apply different and, perhaps, incorrect requirements to different categories of scales.

There are only two references to batching scales in the Scales Code, which are shown below. Both requirements are intended to apply to mechanical scales.

S.1.2. Value of Scale Division Units. – Except for batching scales and weighing systems used exclusively for weighing in predetermined amounts, the value of a scale division “d” expressed in a unit of weight shall be equal to:

- (a) 1, 2, or 5; or
- (b) a decimal multiple or submultiple of 1, 2, or 5; or Examples: scale divisions may be 10, 20, 50, 100; or 0.01, 0.02, 0.05; or 0.1, 0.2, 0.5, etc.
- (c) a binary submultiple of a specific unit of weight.

Examples: scale divisions may be 1/2, 1/4, 1/8, 1/16, etc.
[Nonretroactive as of January 1, 1986]

T.3. Sensitivity Requirement, Equilibrium Change Required.

The minimum change in equilibrium with test loads equal to the values specified in T.2. Sensitivity Requirements (SR) shall be as follows:

- (a) **Scale with a Trig Loop but without a Balance Indicator.** – The position of rest of the weighbeam shall change from the center of the trig loop to the top or bottom, as the case may be.
- (b) **Scale with a Single Balance Indicator and Having a Nominal Capacity of Less Than 250 kg (500 lb).** – The position of rest of the indicator shall change 1.0 mm (0.04 in) or one division on the graduated scale, whichever is greater.
- (c) **Scale with a Single Balance Indicator and Having a Nominal Capacity of 250 kg (500 lb) or Greater.** – The position of rest of the indicator shall change 6.4 mm (0.25 in) or one division on the graduated scale or the width of the central target area, whichever is greater. However, the indicator on a batching scale shall change 3.2 mm (0.125 in) or one division on the graduated scale, whichever is greater.
- (d) **Scale with Two Opposite-Moving Balance Indicators.** – The position of rest of the two indicators moving in opposite directions shall change 1.0 mm (0.04 in) with respect to each other.
- (e) **Scale with Neither a Trig Loop nor a Balance Indicator.** – The position of rest of the weighbeam or lever system shall change from the horizontal, or midway between limiting stops, to either limit of motion.

Discussion of Ambiguity

The proposed definition is:

batching system. – One in which materials are measured in pre-determined quantities by weight and/or liquid measure. 2.20

There are at least four deficiencies in the proposed definition.

1. The term “batching system” is too broad and the term does not appear in Handbook 44.
2. Materials could be a single material.
3. The definition refers to materials measured in pre-determined quantities in liquid measure; and
4. The definition does not distinguish between manually operated, single draft transactions, automatic weighing of several single drafts per transaction, and automatic weighing of multiple drafts for individual transactions.

Point 1: Weights and measures enforcement authority is typically limited to weighing and measuring devices. Is the intended objective to give weights and measures officials regulatory authority control of all the equipment that comprise batching systems? If not, then the proposed definition should address batching scales. What is the ulterior motive to add a definition to Handbook 44 for batching systems for which there are no requirements in Handbook 44? Based on the proposal in 2015 from the manufacturer of seed treatment systems, the KSi wants the proposed definition to apply to their digital electronic or lever-and-load-cell weighing systems that have digital indicating elements. The manufacturer wants to argue that, based upon the proposed definition, the scales in their seed treatment systems are batching scales and fall under the Scales Code rather than the Automatic Bulk Weighing Systems Code and, therefore, do not have to record the no-load weight value for each weighment. The S&T Committee should not permit this.

Point 2: The proposed definition would allow the argument that hopper scales that measure pre-determined quantities of only one material in each weighing cycle or transaction (which, for KSi, is seed grains) to be called “batching systems” and fall under the requirements of the Scales Code. Since there are no requirements for batching systems, does that mean there are no requirements for these scales? Many of the scales in the seed treatment system as designed by the scale manufacturer automatically weigh predetermined quantities of seed in multiple drafts. These scales are automatic bulk weighing systems. Weighing systems for the automatic weighing of pre-determined quantities of a single material (commodity or grain) in multiple drafts fall under the Automatic Bulk Weighing Systems Code.

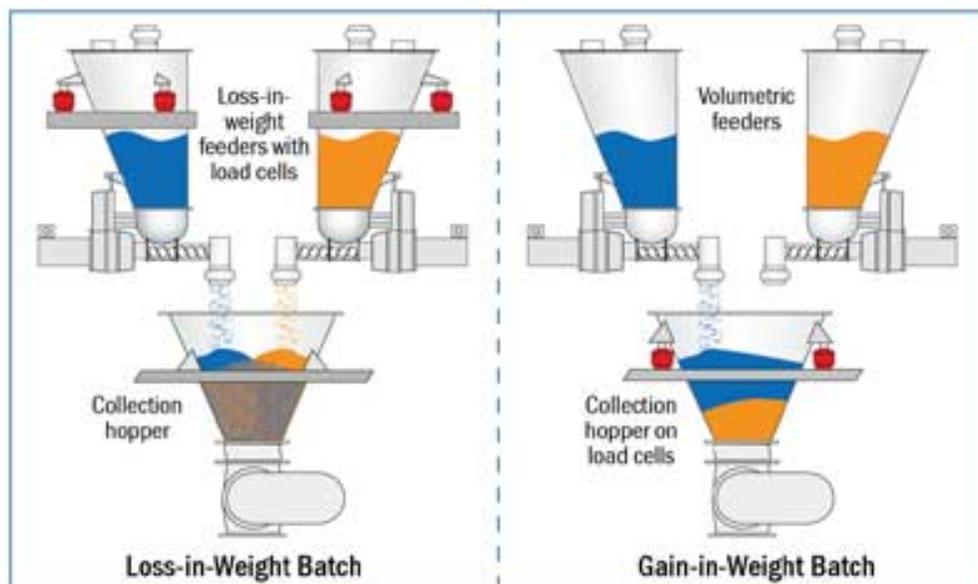
Point 3: Since the proposed definition is intended to apply to scales covered by the Scales Code, why is there a reference to materials measured in liquid measure? If the proposal is changed to apply to both scales and meters, then does the prepayment of \$10 at the gas station change the retail motor fuel device to a batching system? Which different requirements would apply? No other requirements apply, because Handbook 44 does not contain any requirements for batching systems.

Point 4: Consider the range of scales from hopper scales to automatic bulk weighing systems. On one end of the spectrum are hopper scales. Hopper scales that fall under the Scales Code weigh a single material at a time with one draft (weighment) per transaction. This is a manual weighing process controlled by the scale operator. The scale operator is responsible to verify that the scale returns to zero between each single draft per transaction. Different individual (single) materials may be weighed for different transactions.

At the other end of the spectrum are automatic bulk weighing systems. The Automatic Bulk Weighing Systems Code states, “This code applies to automatic bulk weighing systems, that is, weighing systems adapted to the automatic weighing of a commodity in successive drafts of predetermined amounts automatically recording the no-load and loaded weight values and accumulating the net weight of each draft.” These scales automatically weigh a single material in multiple drafts for a single transaction.

Now consider the types of scales that fall between hopper scales and automatic bulk weighing systems. The proposed definition for batching scales does not provide a clear distinction as to whether or not these scales are batching scales or some other types of scales. Which criteria are used by a weights and measures inspector categorize the following scales as either hopper scales, grain hopper scales, batching scales or automatic bulk weighing systems?

1. Hopper scales that manually weigh sand and gravel in single drafts for individual transactions.
2. Hopper scales that manually weigh grain in single drafts for individual transactions.
3. Hopper scales that automatically weigh grain in single drafts for several individual transactions in sequence.
4. Batching scales that weigh two or more materials in a single weighing cycle for a single transaction. See the illustration below for “Gain-in-Weight Batch.” Consider the cases where the scales could be manually controlled for single transactions or automatically controlled for sequencing though multiple recipes for several customers.
5. Scales that weigh out of a single hopper in increments, that is, weigh a single material into a collection hopper. See the illustration below for “Loss-in-weight feeders with load cells.”



6. A hopper scale with a very large-capacity hopper that can automatically weigh a single material into a railroad car in a single draft, but the weighing system can automatically fill many cars in sequence with the same or different materials for a single or multiple customers.
7. The same large-capacity hopper scale as reference in point 6 and that can automatically weigh a single material into the hold of a ship, but now multiple drafts of the same material are weighed and the total weight is accumulated based upon the weight of the individual drafts.
8. Weighing systems that automatic weigh a single material in successive drafts and accumulating the net weight of each draft.
9. Weighing systems adapted to the automatic weighing of a commodity in successive drafts of predetermined amounts automatically recording the no-load and loaded weight values and accumulating the net weight of each draft.

The proposed definition for batching scales does not provide enough guidance and distinction in order to classify each scale described above into the proper category. A hopper scale in any application could be called a batching scale. More definitions may be needed to address all of these scale applications and methods of operation to properly categorize all of these types of scale designs.

Additionally, consider the “loss-in weight” scales that are used in batching systems. These scales never return to zero in normal operation. There are no requirements in Handbook 44 for “loss-in-weight” scales. However, if requirements would be added to address these scales, it is logical and highly likely that weights and measures officials would require that the “beginning” and “end” weights be recorded, so that the difference in the two weights would be documented and could be verified.

It is the recording of the loaded and no-load reference weights for each weighment that KSi wishes to circumvent.