

Interpretation: 5-1

Subject: ANSI B56.5-1978

Date Issued: June 21, 1988

Question: Does Part III, Section 706, of ANSI B56.5-1978 apply to electric guided manned turret trucks?

Reply: The scope of the B56.5 Standard, as published in 1978, was restricted in application and was not intended to apply to electric guided manned turret trucks. However, the guidance related portions of B56.5-1978 have been used extensively in the United States as a guideline for safety issues.

Interpretation: 5-2

Subject: ASME/ANSI B56.5-1988

Date Issued: February 2, 1989

Question (1): Does para. 8.6.1 allow the use of blind steering?

Reply (1): The specification allows the use of locked or blind steering. This section defines the requirement of maintaining less than allowable deviations from the external guidance reference or intended path. Under locked or blind steering conditions, the intended path must be maintained, otherwise the external reference could not be recaptured.

Question (2): Does para. 8.13.3 allow overriding of safety devices in the manual mode?

Reply (2): Manual mode is defined in para. 8.13.3 as complete vehicle operation under the control of a local operator. In this mode, it is necessary to override various safeties to allow operation. Examples include sensors that detect deviation from intended path or external reference and sensors that detect loss of speed regulation. Steering and speed are, by definition, under operator control. Operator training, responsibility, and qualification are referenced in paras. 6.2, 6.3, and 6.4. Cautions regarding operator responsibility are noted in the last paragraph of the General section of the Standard on page 1.

Question (3): What is the definition of "industrial use" as used in the scope of the Standard?

Reply (3): The term "industrial use" cannot be defined by specific application industry such as mail, hospital, or food. The term is commonly accepted to relate to application environments where heavy use and rugged durability are required to support manufacturing, production, warehousing, or distribution activities. If applications are questionable as to whether they are "industrial," it is recommended that the Standard be followed to promote safety.

Interpretation: 5-3

Subject: ASME/ANSI B56.5-1988

Date Issued: November 10, 1989

Question: With regard to paras. 8.10.4 and 8.11.6, what parameters were used to determine the force 8 lb (36 N)?

Reply: Paras. 8.10.4 and 8.11.6 have identical wording with the exception of reference to emergency vs nonemergency conditions. The force of 8 lb (36 N) was initially specified in B56.5-1978. The magnitude of the force was estimated by the committee members to represent a level that would not inflict permanent injury on a human body.

The size and depth of the bumper and the size of the body impacted are not specified; only the maximum allowable activation force is stated.

It is up to the manufacturer of the vehicle to ensure that the vehicle will "stop within the collapsible range of the bumper."

Interpretation: 5-4

Subject: ASME/ANSI B56.5-1988

Date Issued: February 7, 1992

Question (1): With regard to Section 4.7.1 of B56.5-1988, what is considered a restricted area? Also, exactly what identification and/or marking is required? Are aisle boundary markings on the floor, i.e., painted lines along each side of the aisle sufficient, or are special markings other than what is used for normal traffic required?

Reply (1): A "restricted area" is defined in Appendix B of the B56.5 Standard as "an area in which the guidepath is installed and from which unauthorized personnel are prohibited, including small areas of inadequate personnel clearance in an otherwise nonrestricted area."

Question (2): With regard to Section 4.7.2 of B56.5-1988, what is the recommended procedure to mark the floor space boundary required? Are aisle boundary lines sufficient?

Reply (2): Restricted areas are bounded by physical or visual indicators as appropriate for each individual application. In many instances, highly visible aisle boundary lines may be sufficient. Baricades and/or signage may be required for other areas depending on the area and personnel access.

Interpretation: 5-5

Subject: ASME/ANSI B56.5-1988 (including B56.5a-1989)

Date Issued: July 10, 1992

Question (1): Does para. 8.11.6 allow an automatic restart of the vehicle if the reason for the stop has been cleared?

Reply (1): Since para. 8.11.6 refers to non-emergency sensing devices, automatic restart is allowed. Use of bumpers in this mode does not negate the requirements of para. 8.10.

Question (2): If the answer to (1) is yes, how are the requirements of paras. 8.10.1 and 8.10.2(g) met?

Reply (2): The bumpers referenced in paras. 8.10.1 and 8.10.2(g) are classified as emergency sensing devices and therefore do not allow for restart without operator intervention. The differentiation between emergency (8.10) and non-emergency (8.11) controls and device are defined in paras. 8.10.1 and 8.11.1.

Interpretation: 5-6

Subject: ASME/ANSI B56.5-1988

Date Issued: July 10, 1992

Question: With regard to para. 8.10.4, which interpretation, if either, is correct: (1) The force to *activate* the bumper *only* should not be greater than 8 lbs. (2) The total force applied by the bumper to the obstruction should never exceed 8 lbs.

Reply: The concern with bumper force is prevention of injury to personnel. The intent of para. 8.10.4 is to restrict the forces exerted by the bumper to no more than 8 lbs. throughout the travel range.

Interpretation: 5-6R

Subject: ASME/ANSI B56.5-1988

Date Issued: March 25, 1993

Question: With regard to para. 8.10.4, which interpretation, if either, is correct: (1) The force to *activate* the bumper *only* should not be greater than 8 lbs. (2) The total force applied by the bumper to the obstruction should never exceed 8 lbs.

Reply: Statement (1) is a correct interpretation of the Standard. Statement (2) is not currently addressed by the Standard. The subject is currently under consideration by the Subcommittee.

Interpretation: 5-7

Subject: ASME/ANSI B56.5-1988

Date Issued: September 14, 1992

Question (1): With regard to para. 8.17.1(a), why is it necessary to have this labeling on an automated vehicle?

Reply (1): Some automated speed control systems do not operate in a regenerative mode (e.g. down a ramp) which can result in vehicle run-away.

Question (2): With regard to para. 8.17.1(a), are fixed grades of less than 6% considered "ramp" operations?

Reply (2): Ramps for automated vehicle applications are defined in para. 8.7.3(a) which states: "Definition: A variation in floor grade in excess of 3% and of a length where rating data variance is required shall constitute a ramp."

Question (3): With regard to para. 8.17.1(a), do vehicles manufactured in 1982 and installed in 1989 require the MAX GRADE labeling?

Reply (3): The only applicable document at the time of manufacture was ANSI B56.5-1978 Electric Guided Industrial Tow Tractors.

Question (4): If the answer to (3) is yes, then without the manufacturer available, who is qualified to test the vehicles for safe grade capability?

Reply (4): Safe grade capability can be determined only by someone having sufficient design data to perform a conclusive evaluation.

Question (5): With regard to para. 8.17.1(a), what would the test be to determine safe grade capability?

Reply (5): Safe grade capability is design dependent and can be influenced by multiple application factors which include, but are not limited to: load weight, load center of gravity, speed, turn radius, slope, and duration of grade. There is no single or simple test to determine safe grade capability for automated guided vehicles.

Interpretation: 5-8

Subject: ASME/ANSI B56.5-1988

Date Issued: July 16, 1993

Question (1): Does this edition apply to walk-behind, battery-operated, automatic floor scrubbing machines?

Reply (1): No. ASME/ANSI B56.5-1988 is defined as applicable to automated guided industrial vehicles which require no operator interaction. Walk-behind floor scrubbing vehicles, with and without a riding attachment, are not considered to be in the class of vehicles covered by this Standard.

Question (2): Does this edition apply to walk-behind, battery-operated, automatic floor scrubbing machines equipped with a riding attachment?

Reply (2): See Reply (1).

Interpretation: 5-9

Subject: ASME B56.5-1993
Paragraph 8.10, Vehicle Emergency Controls and Devices

Date Issued: July 2, 2002

Question: Does a programmed emergency stop, meeting the requirements of ASME B56.5-1993, paragraph 8.10 Vehicle Emergency Controls and Devices, and paragraph 8.10.4 Bumpers, meet the requirements of an emergency stop?

Reply: A programmed emergency stop cannot exist by definition. Appendix B of B56.5 defines "emergency stop" as "one that occurs for unprogrammed events such as vehicle contact with an object or person through sensors or an emergency button on the vehicle". Programmed stops are covered by the provisions of paragraph 8.11.

Interpretation: 5-10

Subject: ASME B56.5a-1994
Paragraph 1, Scope

Date Issued: July 2, 2002

Question: Does the scope of B56.5 include an unmanned, self-propelled vehicle that is designed to move materials where both the drive and the non-driven axles are fitted with flanged wheels? These flanged wheels ride on standard 105 LB rails that are anchored to the floor.

Reply: No. The scope specifically identifies the standard as not being applicable to mechanically restrained vehicles. The product described is mechanically restrained as to guide path.

The standard may be used as guidance for determining safety aspects of the system and for operation and maintenance, but it is not a controlling standard for this industrial vehicle.

Interpretation: 5-11

Subject: ASME B56.5-1993
Paras. 8.4.2, 8.7.4, 8.14.1, Design and Construction

Date Issued: September 16, 2004

Question: Part III section 8 of ASME B56.5 pertains to the design and construction of “unmanned guided industrial vehicles”. ASME B56.5 paragraphs 8.4.2, 8.7.4 and 8.14.1 all make reference to ASME B56.8. This appears to be a conflict. From Part I section 1 of ASME B56.8, the last sentence states that “unmanned automatic guided vehicles” are not included in ASME B56.8. Please clarify this conflict for unmanned automatic guided vehicles being designed under Part III section 8 of ASME B56.5, does the design also need to meet the applicable requirements of ASME B56.8 when this Standard states they do not?

Reply: The provisions of B56.8 are required as specified in B56.5 for a burden carrier type AGV.

The B56.5 standard recognizes that there are styles of AGV's that include, but are not limited to, burden carrying products. The committee responsible for the standard realized the need for some of the same requirements identified in the various other truck type standards. They also recognized that the real expertise for things such as stability, rested with the subcommittees for these other truck types. Therefore, rather than repeat the requirements in the B56.5 standard, and run the risk of being out of step with potential change by the other subcommittees, they referenced the other truck type standards stating that those requirements must be met as well as those in B56.5. So while, for instance, the scope of B56.8 states that AGV's are not covered by that standard, the B56.5 states that for a burden carrier type AGV, both B56.5 and the referenced sections of B56.8 are applicable.