



General Specifications Change Notification (GSCN)

WR #	GSCN Name	Effective Date
WR 23-000169	Modernise Barcode Placement language	Oct 2023

Associated Work Request (WR) Number:

WR 23-056

Background:

As we address multistep changes in transitioning to 2D data carriers, there are things that need updating identified during, but out of scope for, the Barcode Placement GSCN WR 23-056 – 2D in Retail MSWG. This will include normalizing and updating barcode terminology and simplifying language for clarity.

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6 ~~Symbol~~Barcode placement rules guidelines

6.1 Introduction

This section includes guidelines for the placement of barcodes on packages and containers. It gives the general principles that apply, mandatory rules and recommendations for symbol placement on specific packaging and container types. ~~Additionally, this includes placement rules for transitioning from a linear barcode to a 2D barcode for general retail.~~

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Consistency of symbol placement is critical to successful scanning. With manual scanning, variation of symbol placement makes it difficult for the scanning operator to predict where the symbol is located and this reduces efficiency. With automated scanning, the symbol must be positioned so that it will pass through the field of vision of a fixed scanner as it travels past. Respecting the guidance in this section will result in the consistency and predictability required.

The guidelines in this global specification replace previous local recommendations; however, manufacturers should not scrap packaging that has been printed according to previous guidelines. When packaging is redesigned, the global specifications in this document shall be observed. If government regulatory guidelines are inconsistent with those in this manual, the government guidelines should always take precedence.

✓ **Note:** Barcodes in this guideline that are used as examples are “for position only” and are not intended to denote correct symbol type, size, colour, or quality.

6.2 General placement principles

The following general principles for barcode placement shall be considered for any package type, whether it is scanned at the point-of-sale (POS) or ~~a general distribution scanning environment elsewhere in the supply chain~~. Trade items intended to be scanned at a ~~point-of-sale~~ POS must ~~SHALL~~ be marked with an EAN-13, UPC-A, EAN-8, UPC-E, GS1 DataBar Omnidirectional, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Expanded or GS1 DataBar Expanded Stacked barcode. ~~During the 2D transition period, a GS1 DataMatrix, Data Matrix (GS1 Digital Link URI) or QR Code (GS1 Digital Link URI) may be applied to trade items scanned at retail POS, in addition to the linear barcode. For further information on the conformance requirements for future use of 2D barcodes at retail POS, please refer to the Application Standard Profiles in section 8.~~

The barcodes that are scanned ~~in general distribution scanning environments elsewhere~~ are the EAN-13, UPC-A, ITF-14, GS1 DataBar family and GS1-128 barcodes

EAN-8 and UPC-E barcodes are intended for use on very small trade items sold at ~~the point-of-sale~~ POS (see section 2.1.3).

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6.2.1 Number of ~~symbols~~barcodes

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Barcodes representing different Global Trade Item Numbers (GTINs) must never be visible on any one item. Although a minimum of one symbol is required, two symbols representing the same GTIN are recommended on trade items for scanning in warehousing or general distribution scanning environments (see section 6.7). Two or more symbols representing the same GTIN are recommended on large, heavy, or bulky items for ~~point-of-sale~~ POS (see section 6.4.9) and are permissible on random wraps intended for ~~point-of-sale~~ POS (see section 6.3.3.7). Two ~~symbols~~barcodes, EAN/UPC encoding GTIN and another encoding GTIN plus attributes, may be required during ~~the 2D barcode transition migration periods to new data carriers~~ (see section 4.15 for multiple barcodes). ~~For a summary of all conformance requirements for AIDC application standards, 2D barcodes, cross-application rules and related technical specifications, see section 8.~~

6.2.2 Scanning environment

Before considering the package type, determine whether the item will be scanned in a ~~POS~~point-of-sale or a general distribution scanning environment. If the item is scanned at a ~~point-of-sale~~ POS only, the barcode placement guidelines in sections 6.3, 6.4, 6.5 and 6.5.5 apply. However, if the

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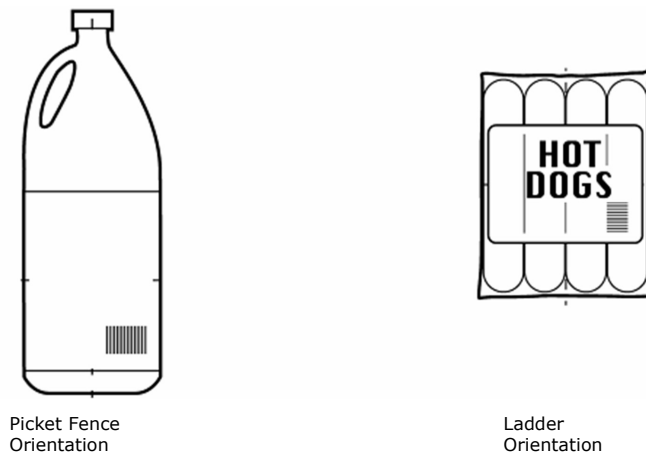
item is scanned in both a point-of-sale and general distribution scanning environment or in a general distribution scanning environment only, the requirements [barcode placement rules in \(see section 6.7\)](#) take precedence.

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6.2.3 Orientation

Barcode orientation is determined primarily by the print process and any curvature of the item. If the printing process and curvature allow, the preferred placement is picket fence orientation, in which the bars of the barcode are perpendicular to the surface on which the package stands in its normal display position. For human readable interpretation rules see section 4.14. Empirical data has demonstrated that it makes no difference to the scanning process one way or the other. Rules for positioning barcodes on curved surfaces are given in section 6.2.3.2.

Figure 6.2.3-1. Barcode orientation



6.2.3.1 Printing direction

Barcode orientation is often determined by the printing process. Some printing processes give much higher quality results if the bars of the symbol run in the direction of the print, also known as the web direction. The printing company should always be consulted.

6.2.3.2 Trade items with curved surfaces

When a barcode is printed onto a curved surface it is sometimes possible for the extremes of the [barcode symbol](#) to disappear around the curve, so that both ends cannot be visible to the scanner at the same time. This is more likely to occur the bigger the [symbol-barcode](#) and the tighter the curve of the packaging. In these situations, [linear barcodes must SHALL](#) be printed using certain combinations of the X-dimension and diameter of the curved surface (e.g., in ladder orientation on a can, in picket fence orientation on a cylindrical packet of biscuits). This helps ensure that the curve results in an apparent loss of height of the bars rather than the more serious apparent loss of complete bars.



Figure 6.3.3.1-4. Maximum POS X-dimension 2D barcode placement in relation to the linear barcode example

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Note: Larger barcodes can appear on trade items, such as cereal boxes, dog food bags and may exceed the recommended 50 mm (1.969 inches) radius. The linear barcode and 2D barcode separation SHOULD be kept as minimal as possible and SHALL respect the quiet zones.

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6.3.3.2 Undesirable ~~an~~ Alternative placement

The ~~undesirable~~ alternative placement for a barcode is the lower right quadrant of a side of the container other than the back.



6.3.3.3 Edge rule

When possible, the barcode must not be closer than 8 mm (0.3 in.) or farther than 100 mm (4 inch) from the nearest edge of the package/container. Previous guidelines suggested a distance of 5 millimetres (0.2 inch) as a minimum. Practical experience has shown this to be inadequate. For example, cashiers often grab the edges of bags and other trade items with their thumbs. Avoid placing the barcode too close to the edge. Such placement reduces efficiency at the ~~point-of-sale~~POS.

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6.3.3.4 Avoid truncated ~~linear symbols~~barcodes

Truncation of a ~~linear~~ barcode is the reduction of the height of a barcode relative to its length. Truncation is not recommended because it destroys the ability of a ~~symbol-barcode~~ to be scanned omnidirectionally at the ~~point-of-sale~~POS. A truncated ~~symbol-linear barcode~~ can only be scanned when the trade item is oriented in particular directions across the scanning beam. Truncation, therefore, reduces checkout efficiency. The more the height of the ~~symbol-barcode~~ is reduced, the more critical becomes the alignment of the ~~linear barcode symbol~~ across the scanning beam. Truncation SHALL be avoided unless absolutely necessary (e.g., when printing on a tightly curved surface) and then the maximum height possible SHALL be printed. See section 6.2.3.2 for rules on the relationship between the diameter of the item and the X-dimension.

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6.3.3.5 Bottom marking

Bottom marking of the trade item with the barcode continues to be acceptable, except for large, heavy, or bulky trade items. However, back (side) marking is preferred.

6.3.3.6 Exceptions to the general placement guidelines

Some trade items require special considerations for barcode placement.

■ Bags

When bag contents settle, the bag edges can bulge to the extent that barcodes located on the lower right quadrant may not be flat enough to permit successful scanning. For this reason, barcodes on bags SHOULD be placed in the centre of the back about one third up from the bottom and as far from the edge as possible while respecting the edge rule. (See section 6.4.1 for more details on bags.)

■ Blister packs or unpackaged items

Trade items that cause scanners to read beyond the flat plane include blister packs and unpackaged items (e.g., deep bowls). For these items, the distance between the scanner window and the barcode on the container or item must be considered. The barcode must not be closer than 8 millimetres (0.3 inch) or farther than 100 millimetres (4 inches) from any edge of the package/container. (See sections 6.4.2 and 6.4.16 for more details on blister packs and unpackaged items.)

■ Large, heavy, or bulky items

Any package/container weighing more than 13 kilograms (28 pounds) or having two dimensions greater than 450 millimetres (18 inches) (width/height, width/depth, or height/depth) is considered a large, heavy, or bulky item. Large, heavy, or bulky items tend to be hard to handle. Large, heavy, or bulky items may require ~~two or more symbols-barcodes with the same Global Trade Item Number (GTIN) ideally in multiple locations one on top and one on the bottom of the opposite quadrant~~ (see section 6.4.9 for more details on large, heavy, or bulky items.)

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■ Thin items or containers

Thin items or containers are packages/containers with a dimension less than 25 millimetres (1 inch) (height, width, or depth). Examples of thin items or containers are packages of pizza, powdered drink mixes and writing pads. Any placement of the symbol on the edge hinders effective scanning because the symbol is obscured from the cashier and is likely to be truncated. (Refer to section 6.4.12 for more details on thin items or containers.)

6.3.3.7 Special packaging considerations for barcode placement

Some packaging methods require special considerations for barcode placement.

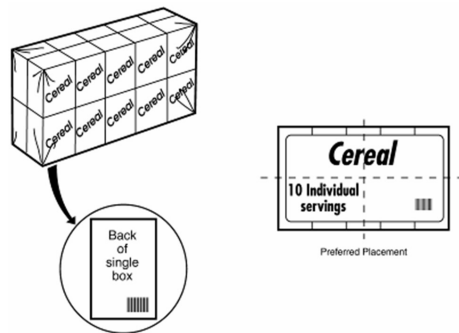
Over-wrap

Trade items sold in multiples are mechanically gathered and covered with clear over-wrap material that will carry print. Typical over-wrapped items are small cereal boxes and chocolate bars. Package over-wrap can create two distinct problems:

- Obscuring the barcodes on individual units inside the multipack is necessary so they are not confused with the outer multipack barcode, which **must SHALL have** different **GTINs**.
- Over-wrapping with such materials as cellophane causes diffraction or reflection of the light beam of the scanner and can reduce contrast, which causes scanning inefficiencies.

To determine proper barcode placement for over-wrapped packaging, follow the guidelines specific to the applicable package type/shape. (See section 6.4 for details on **symbol-barcode** placement for specific package types.)

Figure 6.3.3.7-1. Barcode placement on over-wrapped item



Random (unregistered) wrap

Some wrappers, like those used on sandpaper or margarine, have a repeating design and are neither cut nor placed on the product such that a particular part of the design always appears in the same location. This is referred to as random or unregistered wrapping. As the wrapper is not registered, it is unlikely that the symbol will appear on one face of the package when the wrapper is placed on the product.

The presence of more than one barcode on a package can have a detrimental effect on scanning productivity and, more importantly, can lead to a double read. For this reason, **it is essential that the POS systems be updated to only process one set of the desired data in the final transaction or** the use of registered packaging is preferred **for random wrap**. If random wrap must be used, the minimum requirement is to print the symbol with sufficient frequency so that a full symbol will appear on one package face.

If any additional barcodes are outside of the 50 millimetres (1.969 inches) radius from the centre of the linear barcode, the scanning system may not identify that both barcodes are related to the same trade item. Double reads are more likely when the gaps between the symbols are larger. Repeating symbols SHOULD never be more than 150 millimetres (6 inches) apart.

Consideration should also be given to elongating the bars of the symbol to ensure a full symbol on one face, instead of repeating the symbol.

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Figure 6.3.3.7-2. Barcode placement on random-wrapped item

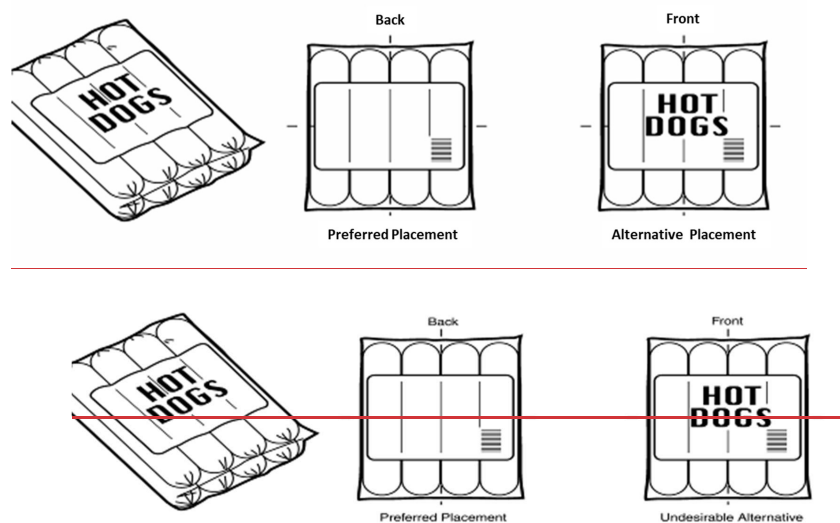


Shrink film/vacuum-formed packages

The barcode on an item packaged in shrink film or that is vacuum-formed SHALL be located on a flat surface and in an area free of creases, wrinkles, or other types of distortions. Refer to figure 6.3.3.7-3, which shows barcode placement on hot dogs. Since the curvature of the hot dogs was greater than the diameter shown within the section 6.2.3.2 figures, a ladder orientation symbol was used.

To determine proper barcode placement for shrink film/vacuum-formed packaging, follow the guidelines specific to the applicable package type/shape. (Refer to section 6.4 for details on symbol placement for specific package types/shapes.)

Figure 6.3.3.7-3. Barcode placement on shrink film/vacuum-formed item



Spot labels

Barcodes printed on spot labels that are applied to the trade item are acceptable alternatives that incorporate symbols into existing packaging graphics or for use on items without packages, such as some pots, pans, tableware and glassware. The most suitable type of spot label is one that cannot be removed from the item without destroying the symbol. Labels that are applied directly to the

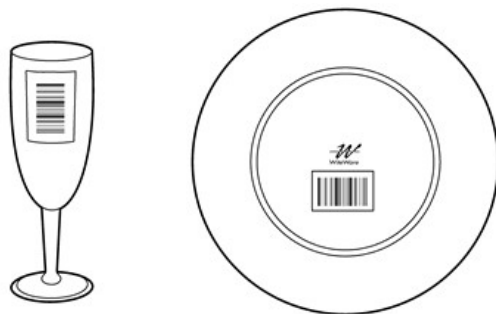
product should use an adhesive that is strong enough to adhere to the label for an extended shelf life, but which also allows the label to be removed without the use of solvents or abrasives.

To determine proper barcode placement on items bearing spot barcode labels, follow the guidelines specific to the applicable package type/shape. (Refer to section 6.4 for details on symbol placement for specific package types.)

Figure 6.3.3.7-4. Barcode placement with a spot label



Figure 6.3.3.7-5. Tableware items using barcode spot labels



6.3.3.8 Operational considerations of barcode placement

Speed, efficiency and effectiveness in scanning operations are the ultimate goals of proper barcode placement. To ensure that scanning performance will not be compromised, consider the following matters before deciding on final barcode placement:

- **Consistent symbol location:** Compare your package/container to packaging for like products to ensure equivalent symbol placement. The ease with which barcodes are located by a cashier from product to product essentially relies on consistent symbol placement.
- **Scan simulation (hand motion effectiveness):** Pass the barcode across the scanner with your hand to test the initial barcode placement. This test is intended to confirm that the barcode placement does not necessitate unnatural hand motions while you are scanning the symbol.



6.3.3.9 Security tag placement

When a visible security tag is used, the preferred placement is within a 75 millimetres (3 inches) diameter of the barcode placement. Consistent security tag placement makes it easier for the operator to predict security tag location and, thus, improves scanning efficiency.

6.4 Placement guidelines for specific package types

The following barcode placement guidelines apply to specific package types. Section 6.5 contains diagrams illustrating symbol placement for clothing and fashion accessories. Figure 6.4-1 *Package type reference* describes the main packaging categories and products. This figure can be used to determine correct barcode placement by product or packaging. For example, according to the figure below, a package of flower seeds in a 50 millimetres (2 inches) by 75 millimetres (3 inches) envelope is classified as a thin item or container. The example given of this type of package is powdered soft drink mix. According to the first column of the *Package type reference*, the correct barcode placement for this package type is determined by looking at section 6.4.12.

Figure 6.4-1. Package type reference

Section	Package type	Package characteristics	Product examples
6.4.1	Bags	Sealed cylindrical or rounded-corner wrapped units	Potato chips, flour, sugar, bird seed
6.4.2	Blister packs	Flat card backing a formed clear plastic bubble placed over product	Toys, hardware parts
6.4.3	Bottles and jars	Small or large-mouth vessels sealed with removable lids	Barbecue sauce, fruit jelly
6.4.4	Boxes	Folded, sealed, heavy paper or corrugated cardboard cartons	Crackers, cereal, detergent
6.4.5	Cans and cylinders	Cylindrical-shaped units sealed at each end	Soups, drinks, cheese, biscuits
6.4.6	Carded items	Items mounted or sealed on flat cards	Hammers, parcels of candy, kitchen utensils
6.4.7	Egg cartons	Irregular hexahedrons of plastic or moulded pulp with hinged lids	Eggs
6.4.8	Jugs	Glass or plastic vessel with built-in handle(s) and removable lid(s)	Household cleaners, cooking oil
6.4.9	Large, heavy, bulky items	Items having physical dimension of 450 mm (18 in.) or more in any two dimensions and/or weight in excess of 13 kg (28 lb)	Pet food, unassembled furniture, sledge hammers
6.4.10	Multipacks	Multiple items mechanically bound to create one package	Soft drink cans
6.4.11	Publishing items	Printed paper media that is bound, stapled, or folded	Books, magazines, newspapers, tabloids
6.4.12	Thin items or containers	Items or containers with one dimension less than 25 mm (1 in.)	Boxes of pizza, CD jewel boxes, powdered soft drink mix packages, writing pads
6.4.13	Trays	Flat, formed receptacles holding product covered with over-wrap	Prepared meats, pastries, snacks, pies, pie crusts
6.4.14	Tubes	Firmly packed cylinders sealed at both ends, or sealed at one end with a cap or valve on the other end	Toothpaste, sausage, caulk
6.4.15	Tubs	Deep vessels with removable lids	Margarine, butter, ice cream, whipped cream
6.4.16	Unpackaged	Trade items that have no packaging, are often of an unusual shape and are hard to label and scan	Frying pans, mixing bowls, cooking pots, giftware
6.4.17	Sets	Trade items that can be sold individually or as part of a boxed set.	Table and giftware

Section	Package type	Package characteristics	Product examples
6.4.18	Sporting goods	Unpackaged items of specific size and shape.	Racquets, skis, skateboards

6.4.1 Bags

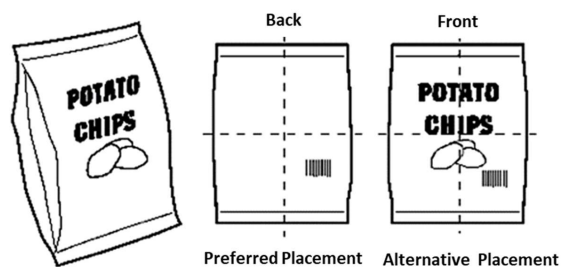
Although this category is referred to as “bags,” these packages/containers are often called sacks or pouches. This category includes paper or plastic containers that are:

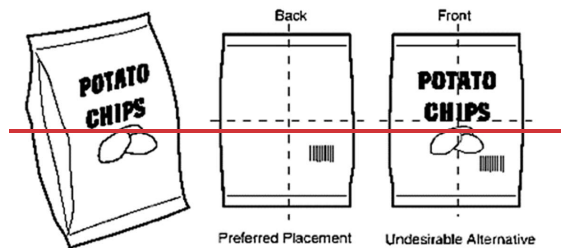
- Fold-sealed on both ends (e.g., flour, sugar).
- Fold-sealed on one end and pinched sealed at the other end (e.g., potato chips).
- Pinch-sealed at both ends (e.g., cough drops).
- Fold-sealed on one end and gathered at the other end (e.g., bread).

✓ **Note:** Some bags are sealed at both ends and carded for display, such as bags of sweets. These types of items are not considered bags but fall into the carded items category. (See section 6.4.6 for details on carded items.)

- Package characteristics: Sealed cylindrical or rounded-corner wrapped units
- Unique considerations: Bags have a tendency to have contents that shift and bulge. Consequently, barcode placement must be on an area of the bag that is most likely to remain flat.
- Barcode placement: Identify the front of the package/container. (See section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back and away from the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable~~ Alternative placement: On the lower right quadrant of the front and away from the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.1-1. Symbol placement on bags



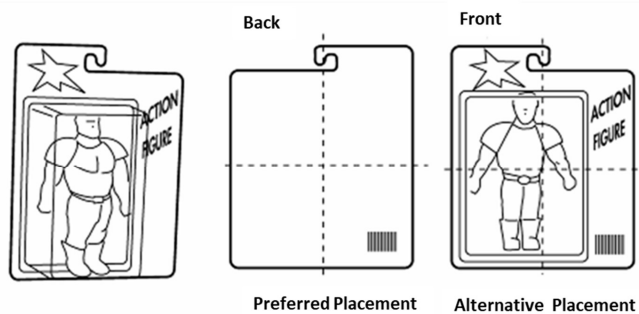


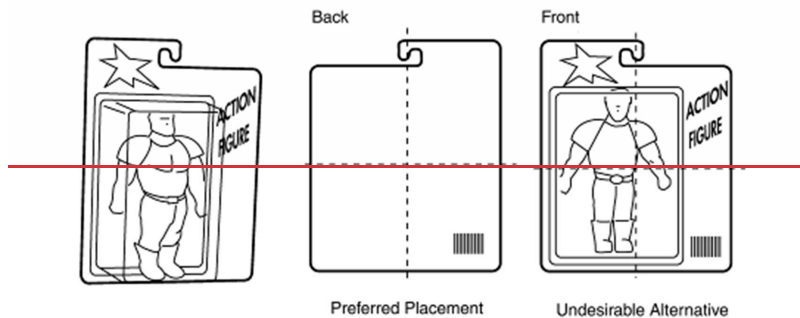
6.4.2 Blister packs

Blister packs are pre-formed clear plastic bubbles, or blisters, containing a product and backed or topped with card stock.

- Package characteristics: flat card, backing a formed clear plastic bubble placed over the product.
- Unique considerations: to ensure quality scanning, the barcode must be clear of the blister edges. Avoid placing the symbol under the blister pack or placing the symbol over any perforations on the back of the package.
- Barcode placement: identify the front of the package/container. (Refer to section [6.3.2](#) for instructions on how to identify the package front):
 - Preferred placement: on the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable~~ Alternative placement: on the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section [6.3.3.3](#).

Figure 6.4.2-1. Symbol placement on blister packs





6.4.3 Bottles and jars

Bottles and jars normally carry spot labels applied to confined areas of the package, not covering the entire surface or wrapping around the entire perimeter.

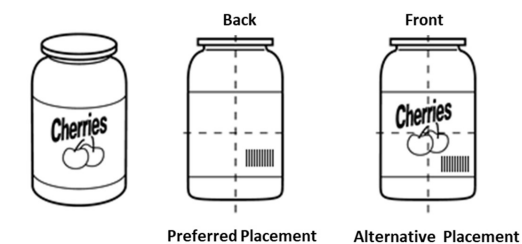
- Package characteristics: Small or large-mouth containers sealed with removable lids.
- Unique considerations: Application of the barcode to the neck of a bottle is not allowed. Symbol placement on the neck of the bottle necessitates additional handling at the ~~point-of-sale~~POS, and space limitations on this area of the bottle usually result in symbol truncation.

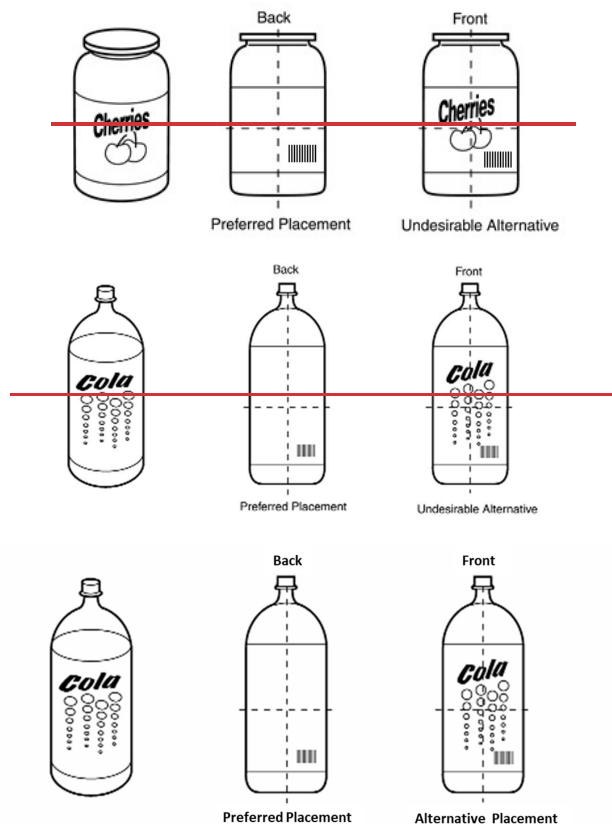
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When a barcode is printed onto a curved surface it is sometimes possible for the extremes of the symbol to disappear around the curve. See section 6.2.3.2 for rules on the relationship between the diameter of the item and the X-dimension.

- Barcode placement: Identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable a~~Alternative placement: On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.3-1. Symbol placement on bottles and jars



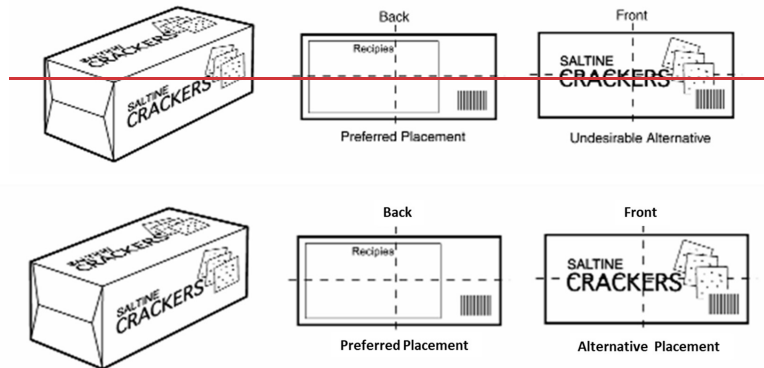


6.4.4 Boxes

This package type includes cuboid or cylindrical card or plastic cartons, as well as rectangular sleeves (used for products such as light bulbs). These packages might contain anything from crackers or cereal to detergent.

- Package characteristics: Folded, sealed, heavy paper or corrugated cardboard cartons.
- Unique considerations: There are no unique considerations that apply to this package type.
- Barcode placement: Identify the front of the package/container. (Refer to section [6.3.2](#) for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable~~ Alternative placement: On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section [6.3.3.3](#).

Figure 6.4.4-1. Symbol placement on boxes

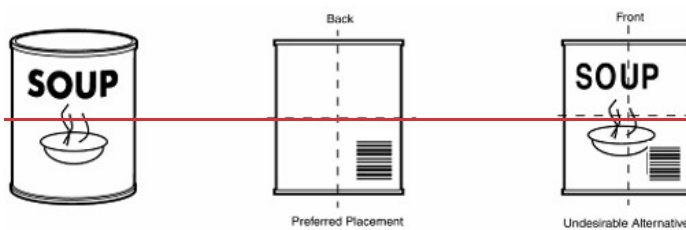


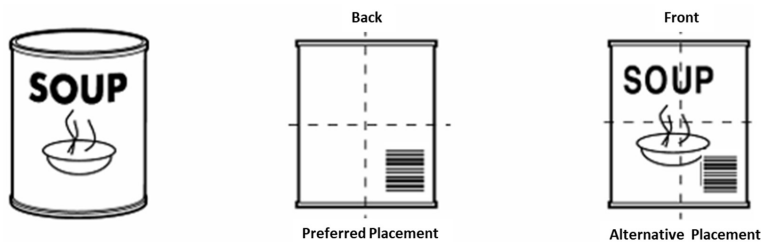
6.4.5 Cans and cylinders

This category includes cylindrical shaped containers (usually made of plastic or metal) that are sealed at each end. Some containers have removable lids or openings. Common examples are canned fruit and vegetables, paints and adhesives.

- Package characteristics: Cylindrical-shaped units sealed at each end.
- Unique considerations: Obstacles, such as beading, seams and/or ridges on the package/container SHALL be avoided, because they will reduce scanning performance. When a barcode is printed onto a curved surface it is sometimes possible for the extremes of the symbol to disappear around the curve. See section 6.2.3.2 for rules on the relationship between the diameter of the item and the X-dimension.
- Barcode placement: Identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable Alternative placement~~: On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.5-1. Placement on cans and cylinders



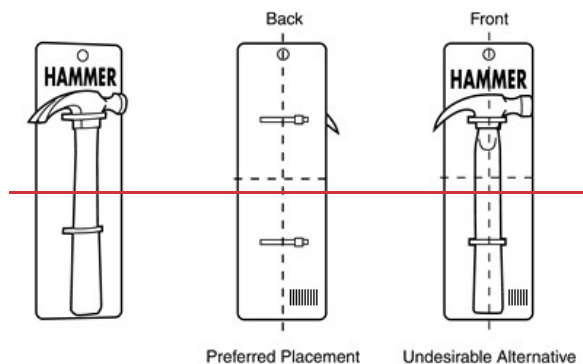


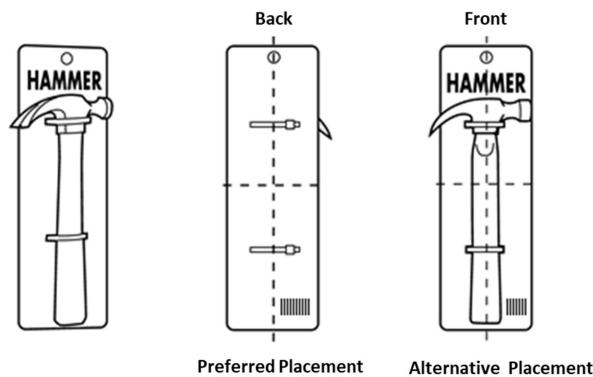
6.4.6 Carded items

Small, loose, or non-packaged items that are difficult to label are placed on cards that are marked with a barcode. Examples include hammers, toys and kitchen utensils.

- Package characteristics: Items mounted or sealed on flat cards.
- Unique considerations: When placing barcodes on carded items, it is important to take into consideration the proximity of the barcode to the product. Be sure to allow adequate space for the symbol, avoiding any obstructions that might be caused by placing the symbol too close to the product. In addition, do not place the symbol over any perforations or other obstructions on the package.
- Barcode placement: Identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable - a~~ Alternative placement: On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.6-1. Symbol placement on carded items



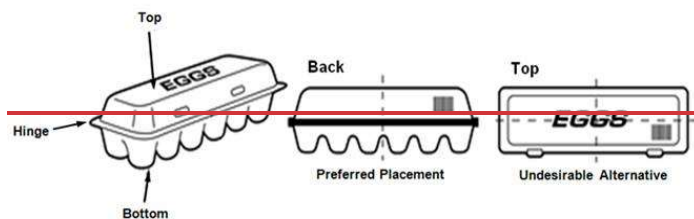


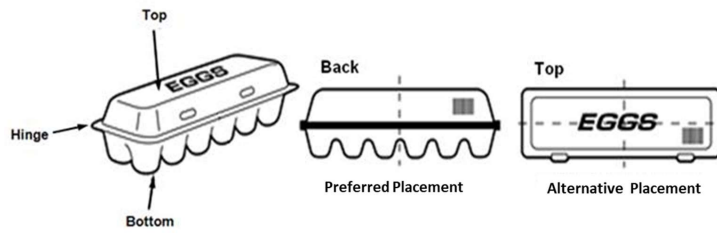
6.4.7 Egg cartons

Moulded pulp, foam, or plastic egg cartons come in sizes according to the number of eggs contained.

- Package characteristics: Irregular shaped hexahedrons of plastic or moulded pulp with a hinged lid.
- Unique considerations: The recommended symbol placement is on the side of the lid portion of the egg carton that opens and closes to cover the eggs. The uneven surface of the moulded bottom of an egg carton prevents barcode placement in this area.
- Barcode placement: To determine barcode placement on an egg carton, first identify the top of the carton by locating the primary trading/advertising area, which is marked with the product name and the company's logo. The bottom of the egg carton is the moulded area directly opposite the top in which the eggs sit. The sides are divided horizontally by a hinged lid. The front of the carton is the long side containing the opening/closing mechanism. The back of the carton is directly opposite the front, on the long side with the hinge:
 - Preferred placement: Near the edge, on the right half of the back, above the hinge on the lid, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable~~ Alternative placement: On the lower right quadrant of the top, on the lid adjacent to the opening/closing mechanism, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.7-1. Symbol placement on egg cartons





6.4.8 Jugs

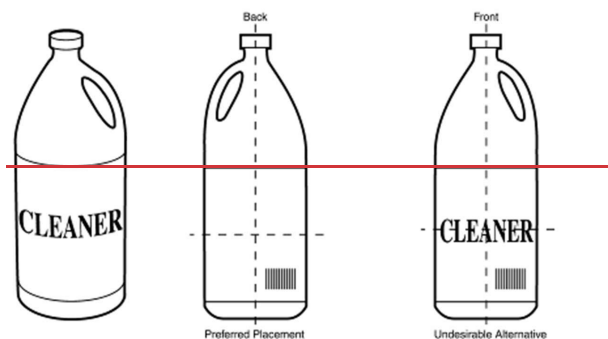
Jugs are glass or plastic containers with a built-in handle(s) that aids in pouring of contents. Jugs normally carry spot labels applied to defined areas of the package, not covering the entire surface of the trade item or wrapping around the entire perimeter of the item.

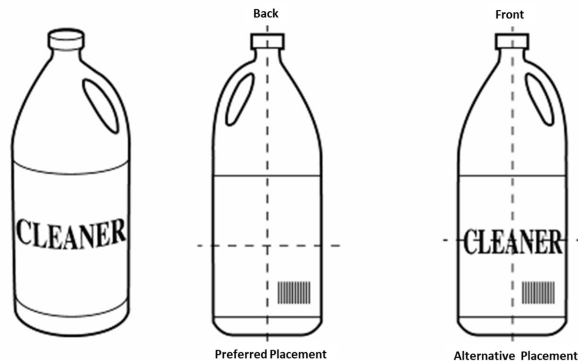
- Package characteristics: Glass or plastic vessels with built-in handles and removable lids.
- Unique considerations: Application of the symbol to the neck of the jug is not allowed. Placement of the symbol on the neck of the jug necessitates additional handling at the **point-of-sale-POS** and space limitations on the neck usually result in symbol truncation.

When a barcode is printed onto a curved surface it is sometimes possible for the extremes of the symbol to disappear around the curve. See section 6.2.3.2 for the rules on the relationship between the diameter of the item and the X-dimension.

- Barcode placement: Identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - **Undesirable - Alternative placement:** On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.8-1. Symbol placement on jugs





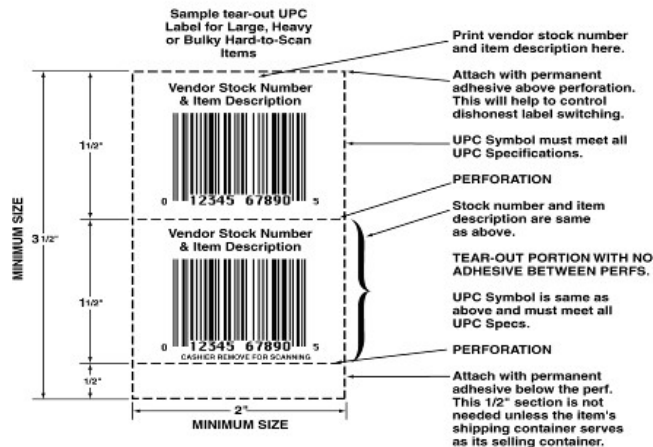
6.4.9 Large, heavy, or bulky items

- Package characteristics: Items considered large, heavy, or bulky have a physical dimension of 450 millimetres (18 inches) or more in any two dimensions (width/height, width/depth or height/depth) and/or weigh in excess of 13 kilograms (28 pounds).
- When a linear barcode and a 2D barcode are both being used for retail POS applications, the entire 2D barcode including Quiet Zones SHOULD be placed within a 50 millimetre (1.969 inches) radius from the centre of the linear barcode.
- Unique considerations:
 - Number of ~~symbols~~barcodes: Large, heavy, or bulky items ~~may SHOULD have require two or more symbols~~ barcodes with the same Global Trade Item Number (GTIN) ideally placed one on top and one on the bottom of the opposite ~~quadrant~~ faces of the trade item.
 - Special labels: A special double label with a tear-out barcode may be applied to large, heavy, or bulky items that are too heavy or awkward to pick up and pass over a fixed scanner. This label has one section that is permanently adhered to the item's box (or to a hang-tag or card if the item is not boxed). This section has a non-HRI text (number and item description) printed above a full-size barcode. Beneath a perforation, a second section contains exactly the same non-HRI text and an identical full-size barcode. The two sections are virtually identical except that the section below the perforation has no adhesive on its back.

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Figure 6.4.9-1.

SAMPLE ILLUSTRATION OF THE DOUBLE LABEL
WITH TEAR-OUT UPC



- When the item is brought to the **point-of-salePOS**, the lower half of the label below the perforation is removed. The cashier then either scans the label or, if the symbol cannot be scanned, the cashier key-enters the human readable interpretation beneath the symbol. The top label remains attached to the item or its box.

In instances where the large, heavy, or bulky item is displayed and sold in its shipping container, a third section of label is recommended. Beneath the tear-out label, a second perforation and a 12 millimetres (0.50 inch) section with permanent adhesive SHALL be added. This provides a more secure vehicle for the tear-out section and makes it less likely to tear off in transit.

- Human readable interpretation: Human readable interpretation on large, heavy, or bulky items SHOULD be a minimum of 16 millimetres (5/8 inch) high. This facilitates easier capture of the number by the cashier without having to pick up the product and move it across the scanner.
- Barcode placement: Identify the front of the **package/containertrade item** (See section 6.3.2, for instructions on how to identify the package front).
- Preferred placement:
 - Bags: ~~Two-bBarcode(s) are required;SHOULD be placed -one-~~ on the front of the bag, at the top of the upper right quadrant, near the edge and the other(s) on the back of the bag, centred in the lower right quadrant, near the edge (to accommodate settling of contents).

Figure 6.4.9-2. Symbol placement on large, heavy, or bulky bags

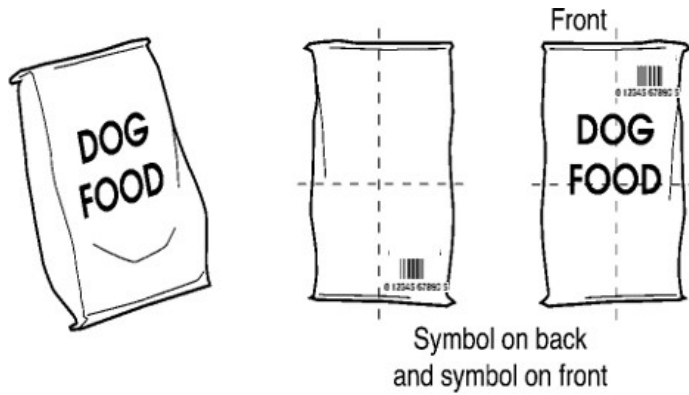
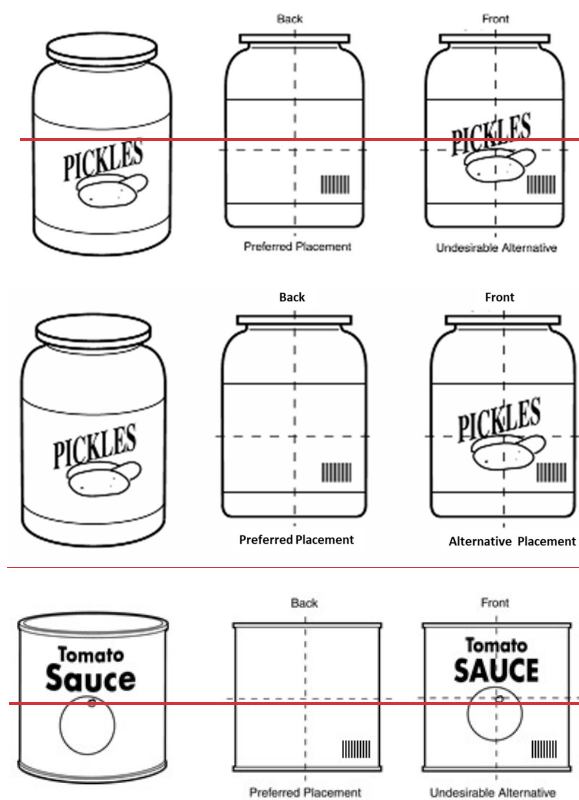
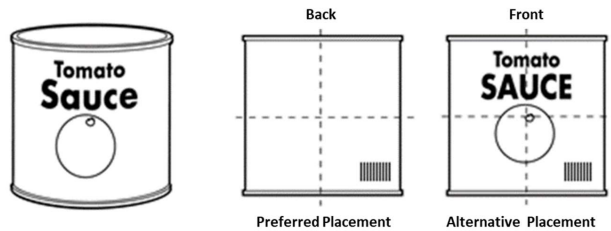


Figure 6.4.9-3. Symbol placement on large, heavy, or bulky jars, cans, jugs, or tubs





- ~~Undesirable - a~~Alternative placement: On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
- Edge rule: See section 6.3.3.3.

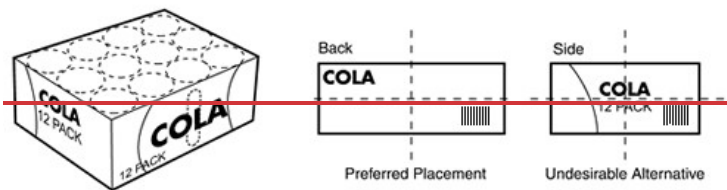
6.4.10 Multipacks

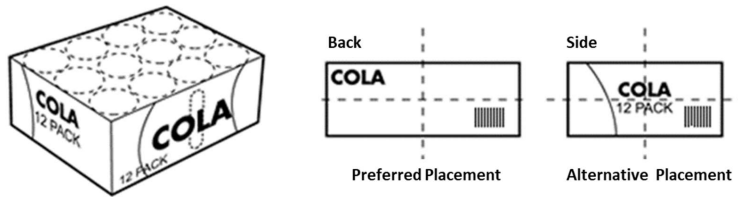
Multipacks are single items that are packaged together as one unit or trade item. Multipacks provide convenience to the consumer and/or may represent a price reduction compared to purchasing items individually. Typical multipacks contain bottles, cans, jars and tubs.

- Package characteristics: multiple single items bound together to create one package.
- Unique considerations: as a general rule, a barcode MUST be placed on every consumer package traded through the supply chain. Consequently, items sold in multipacks as well as those sold individually must carry a unique barcode for each consumer package variation or aggregation. To avoid confusion at the ~~point-of-sale~~POS, the multipack barcode SHALL be the only visible symbol when both the multipack and individual items are symbol-marked. The binder of the multipack acts as a screen to obscure the symbols on the individual items.
 - Special note for can multipacks: Avoid placing the symbol on the top or bottom of the container, since cans have a tendency to cause impressions in the corrugated cardboard and distort the symbol. These can impressions in the symbol may reduce scannability.
- Barcode placement: identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: on the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable - a~~Alternative placement: on the lower right quadrant of another side, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

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Figure 6.4.10-1. Symbol placement on multipacks



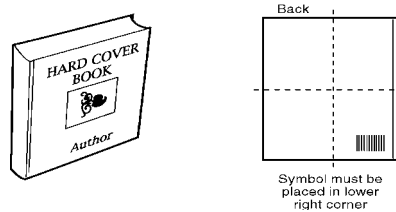


6.4.11 Publishing items

Publishing items represent printed materials sold individually for consumer use including books, magazines, newspapers and tabloids. Barcode placement on published items varies depending on type. In addition, the main symbol on books and paperbacks must appear on the outside cover of the book (to facilitate payment).

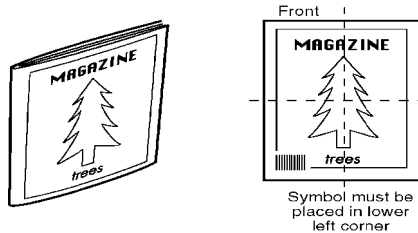
- Package characteristics: printed paper media that is bound, stapled, or folded.
- Unique considerations: in addition to the regular barcode, some publishing items have add-on symbols that carry supplementary information such as an Issue Code. Barcode placement on published items varies depending on the media type. If an add-on symbol is used, it must be located to the right of the regular barcode and parallel to it.
- Barcode placement: identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement:
 - Books: on the lower right quadrant of the back, near the spine, respecting the proper Quiet Zone areas around the barcode.

Figure 6.4.11-1. Symbol placement on books



- Magazines: On the lower left quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.

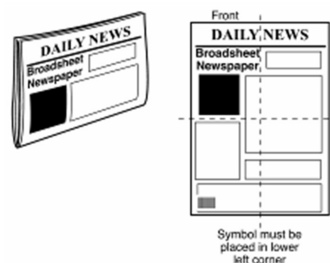
Figure 6.4.11-2. Symbol placement on magazines



- Newspapers: when displayed for sale as shown on the left in figure 6.4.11-3, place the symbol on the lower left quadrant of the front, near the edge, respecting the proper

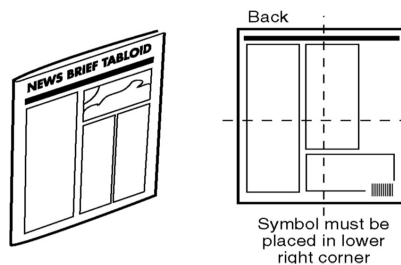
Quiet Zone areas around the barcode. If an add-on symbol is used, it must be located to the right of the regular barcode and parallel to it.

Figure 6.4.11-3. Symbol placement on newspapers



When displayed for sale as shown in figure 6.4.11-4, place the symbol on the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode. If an add-on symbol is used, it must be located to the right of the regular barcode and parallel to it.

Figure 6.4.11-4. Symbol placement on newspapers



- **Undesirable-a** Alternative placement: The ~~undesirable~~-alternative placement is not feasible for this package type.
- Edge rule: See section 6.3.3.3.

6.4.12 Thin items or containers

This package type is so named because items and containers in this category have one physical dimension less than 25 millimetres (1 inch). Items such as these, particularly those without a significant bottom surface, **SHOULD** be marked on the lower right quadrant of the back side. Boxes of pizza, compact disk boxes, packages of powdered drink mix and writing pads are examples.

- Package characteristics: items or containers with one dimension less than 25 millimetres (1 inch).
- Unique considerations: there are no unique considerations that apply to this package type.
- Barcode placement: identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: on the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - **Undesirable-a** Alternative placement: on the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.12-1. Symbol placement on thin items or containers

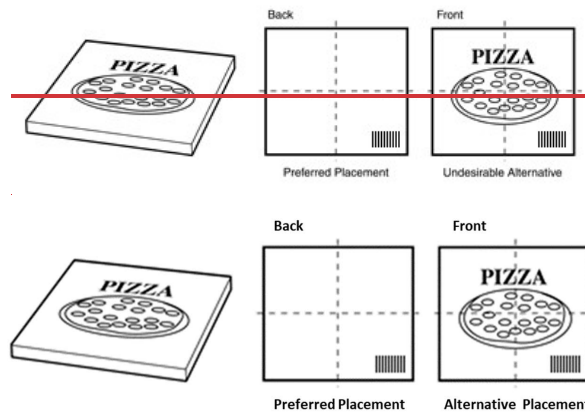
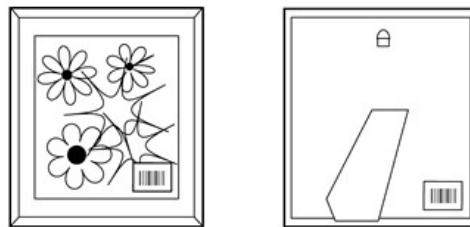


Figure 6.4.12-2. Unpackaged item without room for bottom marking

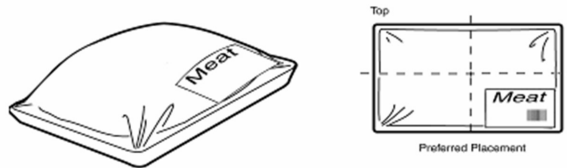


6.4.13 Trays

This package type includes thin square, rectangular, or circular trays holding items that are covered with over-wrap of clear shrink-film or that are vacuum-sealed. Examples include meats, pastries, snacks and pies or piecrusts.

- Package characteristics: Flat, formed receptacles holding product covered with over-wrap.
- Unique considerations: When placing barcodes on trays, it is important to ensure that the barcode is placed on a flat surface. In addition, do not place the symbol over any perforations or other obstructions on the package.
- Barcode placement: Identify the front of the package/container. (Refer to section [6.3.2](#) for instructions on how to identify the package front):
 - Preferred placement: On the lower right corner of the top, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section [6.3.3.3](#).

Figure 6.4.13-1. Symbol placement on trays

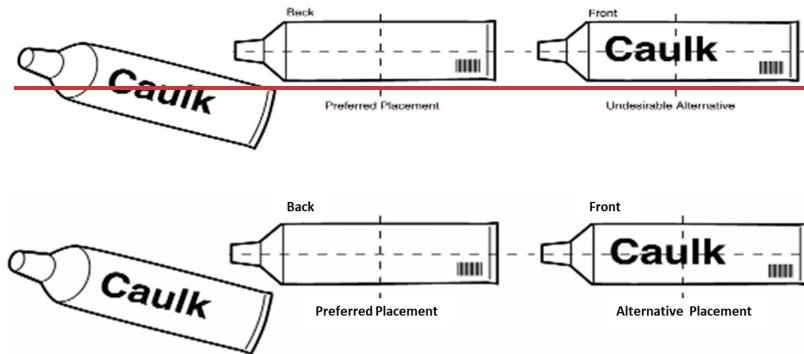


6.4.14 Tubes

Tubes are cylindrical shaped items or containers that are either sealed at both ends, such as sausage or refrigerated dough, or that are sealed at one end and have a cap or valve on the other end, such as toothpaste or caulk.

- Package characteristics: Firmly packed cylinders sealed at both ends, or sealed at one end with a cap or valve on the other end.
- Unique considerations: When a barcode is printed onto a curved surface it is sometimes possible for the extremes of the symbol to disappear around the curve. See section 6.2.3.2 for the rules on the relationship between the diameter of the item and the X-dimension.
- Barcode placement: Identify the front of the package/container. (Refer to section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable~~ Alternative placement: On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.14-1. Symbol placement on tubes



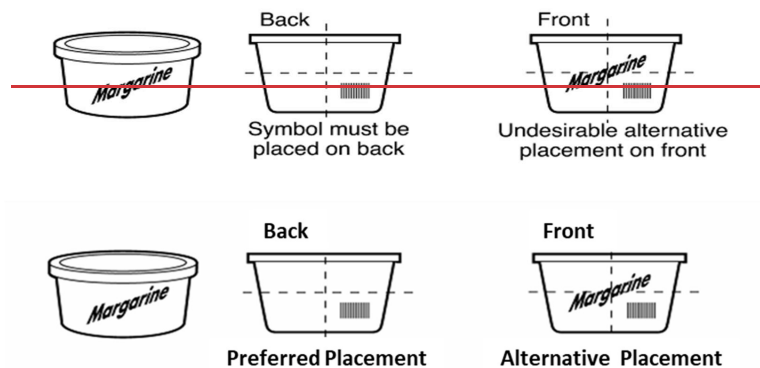
6.4.15 Tubs

Tubs are circular containers (usually made of paper, plastic, or metal) that have removable lids. In most cases, they have spot labels that do not cover the entire surface of the container. Examples include margarine, butter, ice cream and whipped topping.

- Package characteristics: Deep vessels with removable lids.

- Unique considerations: When a barcode is printed onto a curved surface it is sometimes possible for the extremes of the symbol to disappear around the curve. See section 6.2.3.2 for the rules on the relationship between the diameter of the item and the X-dimension.
- Barcode placement: Identify the front of the package/container. (See section 6.3.2 for instructions on how to identify the package front):
 - Preferred placement: On the lower right quadrant of the back, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - ~~Undesirable-a~~ Alternative placement: On the lower right quadrant of the front, near the edge, respecting the proper Quiet Zone areas around the barcode.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.15-1. Symbol placement on tubs



6.4.16 Unpackaged items

These are square, rectangular, circular, concave, or convex shaped items, including bowls, pots, pans, skillets, cups, vases and other products (with or without contents), that lack an upright surface suitable for symbol placement.

- Package characteristics: These are items that are unpackaged and sold with spot labels, hangtags or carded sleeves.
- Unique considerations: When selecting symbol placement, consider the product's concave shape on the inside or irregular curvature on the outside while respecting the scanning distances defined in the edge rule below.
- The general marking guideline for table and giftware items is to use a hangtag. This avoids any damage to the item that could be caused by the spot label adhesive. If this is not practical, the spot label SHALL be applied to the bottom of the item and below the backstamp (where present).
- Barcode placement: Barcode placement on unpackaged items depends on the shape and type of the item. The following examples illustrate symbol placements appropriate to specific item types.
 - Preferred placement: The figures that follow indicate acceptable placement locations for other shaped items.
 - ~~Undesirable-a~~ Alternative placement: The ~~undesirable~~ alternative placement is not applicable.
 - Edge rule: See section 6.3.3.3.

Figure 6.4.16-1. Example barcode location on unpackaged item

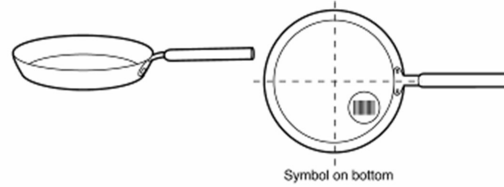


Figure 6.4.16-2. Example barcode location on unpackaged item

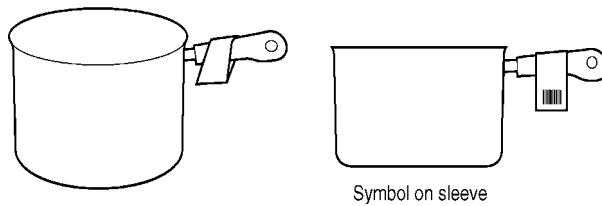


Figure 6.4.16-3. Example barcode location on unpackaged item

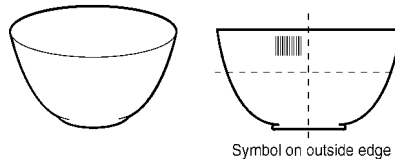
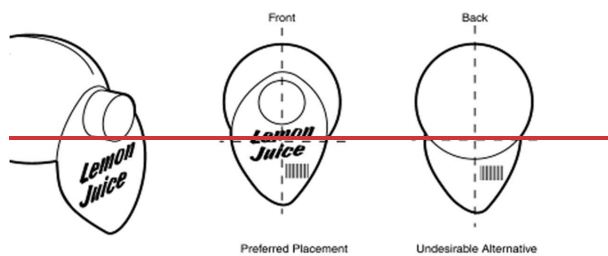


Figure 6.4.16-4. Example barcode location on unpackaged item



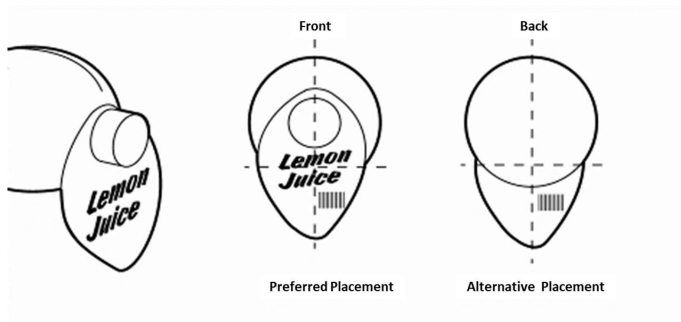
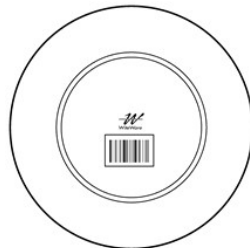


Figure 6.4.16-5. Giftware using hangtag



Figure 6.4.16-6. Tableware using spot label below backstamp

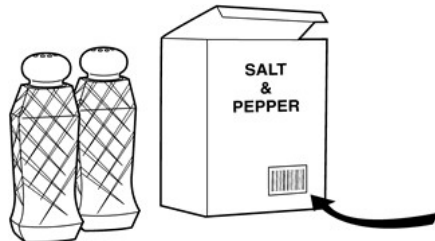


6.4.17 Sets (grouping of individually barcoded items)

For barcoding purposes, sets are defined as two or more items that are packaged and sold together as one unit, regardless of whether those items can be sold separately as well. If the items are packaged together for shipping purposes but are not intended to be sold as a single unit, they do not qualify as a set. Examples of sets include a pair of candlesticks, a set of four soup bowls and a five-piece dinner place setting.

If a set is not intended to be sold as individual components, only the package for the set needs to include a barcode.

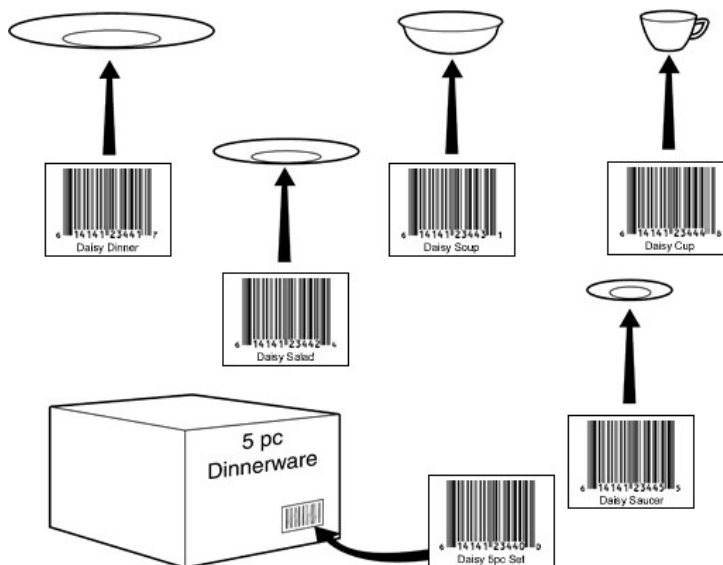
Figure 6.4.17-1. Example of a set where individual components are not sold separately



If the set is made up of components that can be ordered as separate trade items, then the components of the set must be marked. If the set can be sold as individual components or as the set, then both the package and the components need to be marked with unique symbols. The barcodes on the inner products must be totally obscured so that they cannot be read by the ~~point-POS of sale~~ system when sold as a set. (See section 6.3.3.7 for over-wrap special considerations.)

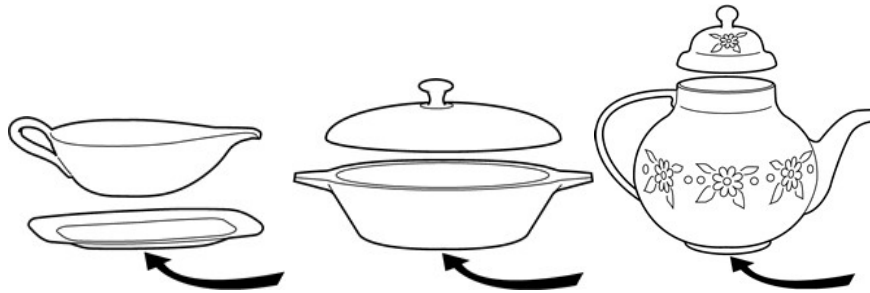
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Figure 6.4.17-2. Example of a multi-piece set sold as a set or as individual components



If an item is made up of multiple components that cannot be sold separately, such as a teapot with lid, the main piece only SHALL be marked with one symbol. Such items are not considered sets.

Figure 6.4.17-3. Items with multiple pieces that are not sold separately
(these are not considered sets)



6.4.18 Sporting goods

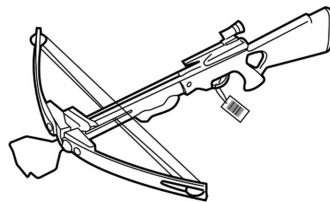
Sporting goods is a category composed of many irregular sized and shaped goods. An understanding of each product type, the logistics involved in the supply chain and the sales floor presentation are key to improving the overall **point-of-salePOS** efficiency. Of particular importance is consistent barcode placement for sporting goods as presented at the retail **point-of-salePOS**. This enables the **point-of-salePOS** operator to accurately predict the symbol location and thereby improve efficiency. The following examples, while not exhaustive, provide the general principles that are applied to similar product types.

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6.4.18.1 Archery bows, arrows

- Preferred placement:
 - If packaged in boxes, see section 6.4.4.
 - If packaged using a hangtag, see section 6.5.2.
- Edge rule: See section 6.3.3.3.

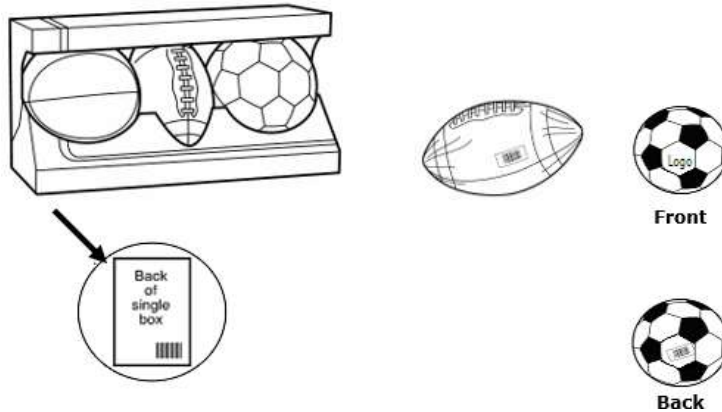
Figure 6.4.18.1-1. Example barcode location on a crossbow



6.4.18.2 Balls, team sports

- Preferred placement:
 - If packaged individually, placement on the shrink wrap.
 - If packaged in boxes or boxed sets, see section 6.4.4 and section 6.4.17. If a master SKU is not utilised for a boxed set of balls or a pack set of ball and pump, each product type within the pack set SHALL have a screened barcode.
 - If not packaged, screen the barcode on the opposite side of the logo on the ball.
- Edge rule: See section 6.3.3.3

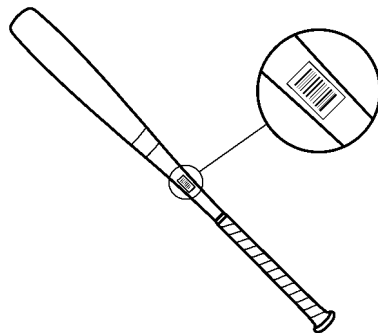
Figure 6.4.18.2-1. Example barcode locations on a box of balls & separate balls



6.4.18.3 Bats, team sports

- Preferred placement: On the barrel handle of the bat, respecting the proper Quiet Zone areas around the barcode.
- Edge rule: See section [6.3.3.3](#)

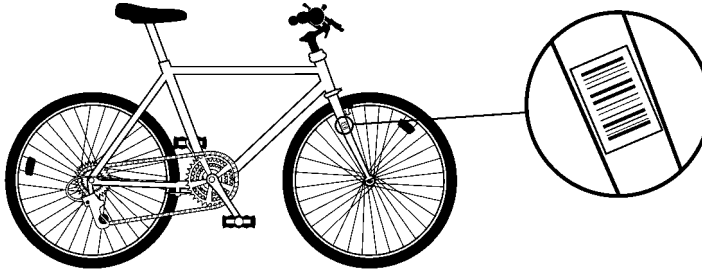
Figure 6.4.18.3-1. Example barcode location on a baseball bat



6.4.18.4 Bicycles

- Preferred placement: On the right hand fork of the bike, respecting the proper Quiet Zone areas around the barcode.
- ~~Undesirable~~ Alternative placement: On a hangtag around the right hand brake cable, respecting the proper Quiet Zone areas around the barcode.
- Edge rule: See section [6.3.3.3](#)

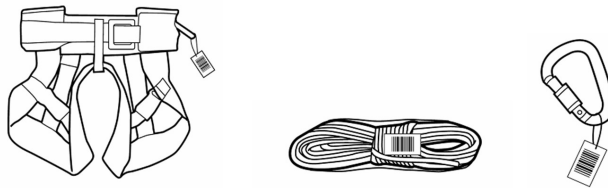
Figure 6.4.18.4-1. Example barcode location on a bicycle



6.4.18.5 Climbing gear

- Preferred placement:
 - If packaged in boxes, see section [6.4.4](#)
 - If packaged using a hangtag, see section [6.5.2](#)
 - If packaged as carded items, see section [6.4.6](#)
- Edge rule: See section [6.3.3.3](#)

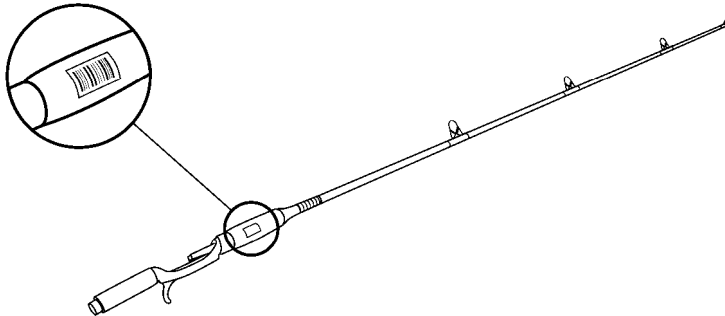
Figure 6.4.18.5-1. Example barcode locations on climbing gear



6.4.18.6 Fishing rods

- Preferred placement: On the grip of the fishing rod near the sealed end, respecting the proper Quiet Zone areas around the barcode. When a barcode is printed onto a curved surface, it is sometimes possible for the extremes of the symbol to disappear around the curve. See section [6.2.3.2](#) for the rules on the relationship between the diameter of the item and the X-dimension.
- ~~Undesirable alternative placement:~~ On a cardboard wrap or a hangtag on the shaft of the fishing rod, respecting the proper Quiet Zone areas around the barcode.
- Edge rule: See section [6.3.3.3](#)

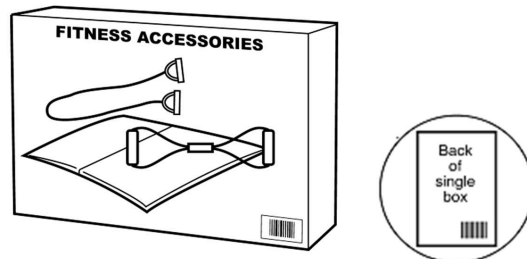
Figure 6.4.18.6-1. Barcode location on a fishing rod



6.4.18.7 Fitness accessories

- Preferred placement:
 - If packaged in boxes, see section [6.4.4](#)
 - If packaged using a hangtag, see section [6.5.2](#)
 - If packaged as carded items, see section [6.4.6](#)
- Edge rule: See section [6.3.3.3](#)

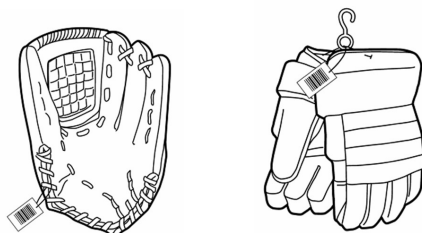
Figure 6.4.18.7-1. Example barcode location on a box of fitness accessories



6.4.18.8 Gloves, mitts (sports)

- Preferred placement:
 - If packaged in boxes, see section [6.4.4](#)
 - If packaged using a hangtag, see section [6.5.2](#)
 - If packaged in bags, see section [6.4.1](#)
 - If not packaged, see section [6.4.9](#)
- Edge rule: See section [6.3.3.3](#)

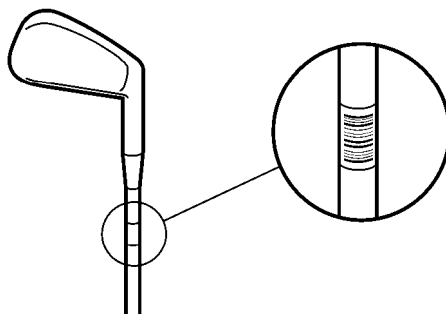
Figure 6.4.18.8-1. Example barcode locations on gloves



6.4.18.9 Golf club

- Preferred placement: On the shaft of the club located near the club head, respecting the proper Quiet Zone areas around the barcode. When a barcode is printed onto a curved surface, it is sometimes possible for the extremes of the symbol to disappear around the curve. See section 6.2.3.2 for the rules on the relationship between the diameter of the item and the X-dimension. Symbols SHALL NOT be located on the head of the golf club as symbols located on this flat area (normally preferable to locating barcodes on a curved surface) are easily damaged due to customer trials.
- ~~Undesirable a~~ Alternative placement: On the grip of the club near the sealed end, respecting the proper Quiet Zone areas around the barcode.
- Edge rule: See section 6.3.3.3

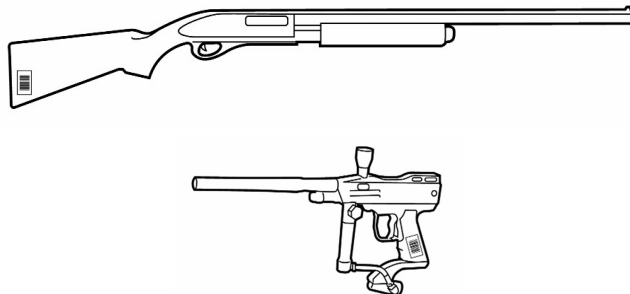
Figure 6.4.18.9-1. Example barcode location on a golf club



6.4.18.10 Guns

- Preferred placement:
 - If packaged using a hangtag, see section 6.5.2
 - If packaged as a blister pack, see section 6.4.2
 - If not packaged, placement near serial number
- Edge rule: See section 6.3.3.3

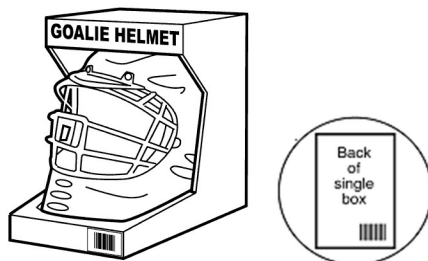
Figure 6.4.18.10-1. Example barcode locations on a rifle and paint ball gun



6.4.18.11 Helmets, masks (sports)

- Preferred placement:
 - If packaged in boxes, see section [6.4.4](#)
 - If packaged using a hangtag, see section [6.5.2](#)
 - If not packaged, see section [6.4.9](#)
- Edge rule: See section [6.3.3.3](#)

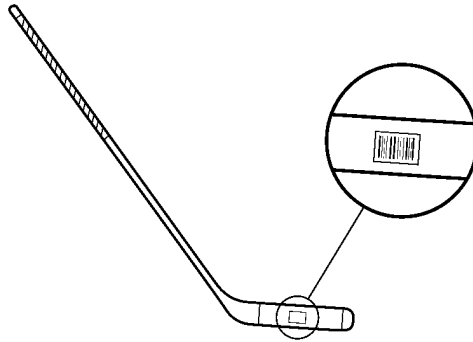
Figure 6.4.18.11-1. Example barcode location on a helmet



6.4.18.12 Ice-hockey and field hockey

- Preferred placement: On the flat blade of the stick, respecting the proper Quiet Zone areas around the barcode.
- ~~Undesirable~~ Alternative placement: At the very top of the shaft of the stick, respecting the proper Quiet Zone areas around the barcode. When a barcode is printed onto a curved surface, it is sometimes possible for the extremes of the symbol to disappear around the curve. See section [6.2.3.2](#) for the rules on the relationship between the diameter of the item and the X-dimension.
- Edge rule: See section [6.3.3.3](#)

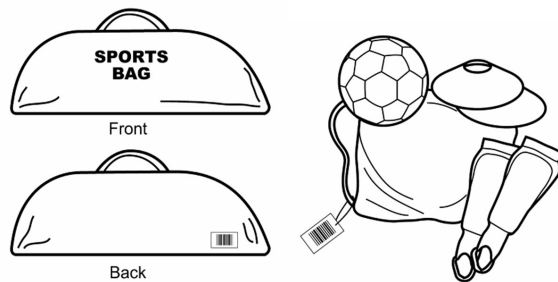
Figure 6.4.18.12-1. Example barcode location on an ice-hockey stick



6.4.18.13 Multi-sports-product pack sets

- Preferred placement:
 - For placement on bags, see section [6.4.1](#)
 - For placement on hangtags, see section [6.5.2](#)
- Edge rule: See section [6.3.3.3](#)

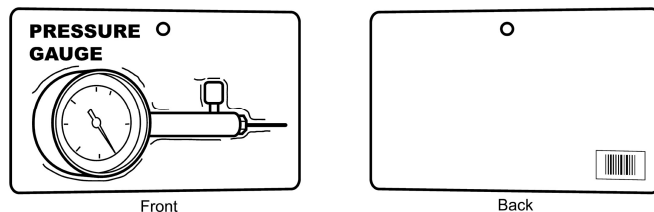
Figure 6.4.18.13-1. Example barcode location on a product pack



6.4.18.14 Pressure gauges and sports pumps

- Preferred placement:
 - If packaged as carded items, see section [6.4.6](#)
 - If packaged in bags, see section [6.4.1](#)
 - If not packaged, placement on the wrap band securing the tip/needles, etc.
- Edge rule: See section [6.3.3.3](#)

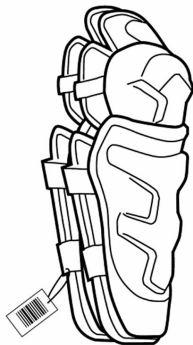
Figure 6.4.18.14-1. Example barcode location on a carded item



6.4.18.15 Protective gear, guards, vests

- Preferred placement:
 - If packaged as a carded item, see section [6.4.6](#)
 - If not packaged, see section [6.4.9](#)
- Edge rule: See section [6.3.3.3](#)

Figure 6.4.18.15-1. Example barcode location on guards



6.4.18.16 Racquets

- Preferred placement: On the grip of the racquet near the sealed end, respecting the proper Quiet Zone areas around the barcode. When a barcode is printed onto a curved surface it is sometimes possible for the extremes of the symbol to disappear around the curve. See section [6.2.3.2](#) for the rules on the relationship between the diameter of the item and the X-dimension.
- ~~Undesirable~~ Alternative placement: On the cardboard wrap placed over the head of the racquet near the edge of the racquet head, respecting the proper Quiet Zone areas around the barcode.
- Edge rule: See section [6.3.3.3](#)