

Voluntary Guidelines for

**FLOOR-READY
MERCHANDISE**

**4.0 Hanger Performance
Specifications**

2nd Edition

Revision: April 01, 2009



Copyright © 1994 - 2006

Voluntary Interindustry Commerce Solutions Association

All rights reserved.

Table of Contents

Section	Title	Page
	Table of Contents	3
	Revision Summary	5
4.0	Hanger Performance Specifications	6
4.1	Introduction	6
4.2	General Guidelines Clear (Department Store) Hangers	6
4.2.1	Properties and Definitions	6
4.2.1.1	Clarity/Color	6
4.2.1.2	High temperature Creep	7
4.2.1.3	Low Temperature Impact Resistance	8
4.2.1.4	Fracture/Shatter Resistance	8
4.2.1.5	Profile Drawings	8
4.2.1.6	Warp and Distortion	8
4.2.2	Metal Parts	9
4.2.2.1	Wire Hook Specifications	9
4.2.2.2	Hook Strength	9
4.2.3	Size Indicators	10
4.2.3.1	Hanger Receptacle Design	10
4.2.3.2	Size Indicator Design	10
4.2.3.3	Size Indicator Color/Marking	10
4.3	Flat, Clear (Department Store) Tops Hangers (Category 1, 6, 7, 9)	10
4.3.1	Tops Hanger Dimensions	10
4.3.2	Tops Hanger Normal Load Capacity	10
4.3.3	Tops Hanger Proof Load Capacity	11
4.3.4	Tops Hanger Flexibility/Rigidity	11
4.3.5	Tops Hanger Thickness	12
4.3.6	Coordinate Loop Feature Dimensions	12
4.3.7	Coordinate Loop Feature Strength	12
4.4	Flat, Clear Type 2 (U-Beam) Knitwear Tops Hangers (Category 3)	13
4.4.1	Hook Tip	13
4.4.2	Hook Height	13
4.4.3	Sweater/Knit Hanger Normal Load Capacity	13
4.4.4	Sweater/Knit Hanger Proof Load Capacity	13
4.4.5	Sweater/Knit Hanger Flexibility/Rigidity	14
4.4.6	Sweater/Knit Hanger Thickness	15
4.4.7	Non-Slip Shoulder Surfaces	15
4.5	Bottoms Hangers (Category 2)	15
4.5.1	Bottoms Hanger Load Capacity	15
4.5.1.1	Short-Jaw Hangers	15
4.5.1.2	Long-Jaw Hangers	16
4.5.1.3	Long-Jaw (Jeans) Hangers	16
4.5.2	Garment Clip Operation (Pinch Clip)	16
4.5.3	Garment Clip Life (Pinch Clip)	16
4.5.4	Deformation (Warp) Under Load	16
4.6	Infant, Toddler, and Children Hangers (Category 10)	17
4.6.1	Color Match	17
4.6.2	Hook/Coordinate Hook Design	17
4.6.3	Hook/Coordinate Hook Strength	17
4.6.4	Flat Tops Hangers and Frame Hangers	17
4.6.5	Bottoms Hangers	17
4.6.6	Logo Identification	17

Section	Title	Page
4.6.7	Specialty Hangers	17
4.7	Intimate Apparel Hangers (Category 8)	18
4.7.1	Intimate Apparel Hanger Dimensions	18
4.7.2	Hook Specifications	18
4.7.3	Hook Strength	18
4.7.4	High Temperature Creep	19
4.7.5	Intimate Apparel Proof Load Capacity	19
4.7.5.1	Top and Bottom (Horizontal) Clip Performance	19
4.7.5.2	Vertical End Clip Performance	20
4.7.6	Intimate Apparel Wrap Hangers	21
4.7.7	Logo Identification	21
4.7.8	Intimate Hanger Flexibility Test	21
4.8	Department Store Jacket and Outerwear Hangers (Category 4 & 5)	22
4.8.1	Type 1 - I-Beam Section Hangers	22
4.8.1.1	High Temperature Creep	22
4.8.1.2	Coordinate Loop Specification	22
4.8.1.3	Normal Load Capacity	23
4.8.1.4	Tops Hanger Thickness	23
4.8.1.5	Wire Hook Gage	23
4.8.2	Type 2 - U-Beam Section Hangers	23
4.8.2.1	High Temperature Creep	23
4.8.2.2	Normal Load Capacity	23
4.8.2.3	Tops Hanger Thickness	23
4.8.2.4	Hook Specifications	24
4.8.3	Hook Height Type 1 and Type 2 Hangers	24
4.9	Swim Wear/Active Wear Hangers (Category 7)	24
4.9.1	Hanger Dimensions	24
4.9.2	Normal Load Capacity	24
4.9.3	Hook Specifications (Metal)	25
4.9.4	Hook Height (Metal and Plastic)	25
4.9.5	Pinch Clip Operation	25
4.9.6	Shoulder Strap Clip (Horizontal)	25
4.9.7	Deformation (Warp) Under Load	25

Revision Summary

Date	Section	Page	Revision
15-Sep-06	All	All	2nd Edition published.
01APR09	VICS Board Approved Revisions	All	
	4.2.1.5 Profile Drawings	8	Remove "required test garment fixture"
	4.2.2 Metal Parts	9	Add "free of Lead, Mercury or Chrome"
	4.2.2.1 Wire Hook Specification	9	Add Ball End Hook
	4.2.2.2 Hook Strength	9	Pending- Update drawing to Ball End Hook
	4.2.3.1 Hanger Receptacle (Sizer)	10	Add Secure Over Hook Sizer (SOHS)
	4.2.3.2 Size Indicator Design	10	Add Secure Over Hook Sizer (SOHS)
	4.2.3.3 Size Indicator Color Marking	10	Add Secure Over Hook Sizer (SOHS)
	4.3.3 Top Hanger Proof Load	11	Pending- Update drawing to Ball End Hook
	4.3.4 Tops Hanger Flex/Rigidity	11 - 12	Pending- Update drawing to Ball End Hook
	4.3.4 Tops Hanger Thickness	12	Correct number to 4.3.5, update drawing to Ball End Hook
	4.3.5 Coordinate Loop Feature Dim.	12	Correct number to 4.3.6
	4.3.6 Coordinate Loop Strength	12	Correct number to 4.3.7 Pending- Update drawing to Ball End Hook
	4.4.6 Sweater/Knitwear Thickness	15	Minimum dimensions
	4.8.1.2 Coordinate Loop Specification	22	Pending- Update drawing to Ball End Hook
	4.8.1.4 Tops Hanger Thickness	23	Minimum hanger thickness
	4.8.1.5 Wire Hook Gauge	23	Add Ball End Hook
	4.8.2.1 High Temp. Creep	23	Pending- Update drawing to Ball End Hook
	4.8.2.3 Top Hanger Thickness	24	Minimum thickness per section design
	4.8.2.4 Hook Specifications	24	Add Ball End Hook
	4.8.3 Hook Height Type 1 & 2	24	Pending- Update drawing to Ball End Hook
	Generic drawings (All)		Pending- Update all generic drawings and illustrations to 3D CAD renderings
	All	All	Added metric equivalents

4.0 Hanger Performance Specifications

4.1 Introduction

Specified below are series of tests and performance standards intended to assure buyers and users of hangers that these hangers will meet expectations for quality and performance.

The tests and specifications may be employed several ways, as agreed upon by trading partners. The most common applications of the tests and specifications include:

- ◆ use by retailers and/or garment manufacturers to evaluate and qualify hanger providers and their products,
- ◆ use by retailers and/or garment manufacturers to audit hanger providers and their products on an ongoing basis, and
- ◆ use by hanger providers to evaluate product designs and confirm ongoing quality assurance effectiveness.

Successful completion of the tests - which apply at the time of purchase/delivery - will provide a degree of confidence that the hangers will perform as expected when properly applied under normal display and transportation conditions.

Unusual applications may cause excessive loads and result in unexpected failures or other problems. They should be reviewed in advance with the hanger provider to avoid any inconvenience and derive the maximum value from the hanger purchase.

Regardless of which organization conducts the tests, they are to be performed on representative samples of the product. Tests are to be performed by qualified personnel using calibrated equipment of suitable precision. Test results are to be documented and provided upon request to the customer or provider as appropriate.

Note that while the tests and specifications are useful for evaluating product performance and appearance on a sample basis, it is the ultimate responsibility of the hanger provider to exercise appropriate quality control and assure that products continue to meet agreed upon expectations on an ongoing basis.

4.2 General Guidelines Clear (Department Store) Hangers

General guidelines apply to all categories of hangers unless specified otherwise by the respective definitions or performance requirements for a given style hanger.

4.2.1 Properties and Definitions

4.2.1.1 Clarity/Color

I-Beam hangers (Type 1) and U-Beam (Type 2) Tops hangers, and Bottoms hangers are to be manufactured from plastic material that is substantially clear with an appropriately smooth surface so as to appear substantially clear wherever ribs, multiple walls or other internal features are not present. Appearance of the hanger will be evaluated visually against established standard clarity (Clear) reference chips. The hanger is to be evaluated under cool white fluorescent light. Clear hangers are

to be viewed individually, through the face, and compared to the clarity standard. A "Clear" hanger will be judged acceptable, if it is within all of the limits established for yellowing, blueness, and haze.

Clarity/Color Specifications

The set of 3 standard clarity/color chips are defined by the following performance specifications and composition:

Clarity

Haze (%): 6.85 Maximum
Standard chip composition: Blend of K-Resin SB Copolymer Grade KR03 or equivalent with clear polystyrene (Chevron 3710 or equivalent). Vary ratio until haze target is obtained.

Yellow

Hunter +b (Yellow): 2.52 Maximum
Standard chip composition: Blend of K-Resin SB Copolymer Grade KR03 or equivalent with Ciba Giegy Tinuvin P. Vary ratio until the yellow target is obtained.

Blue

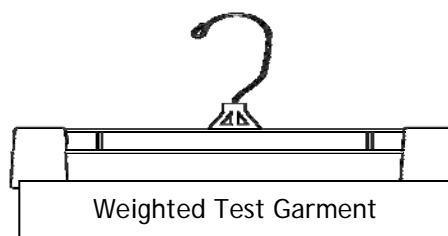
Hunter -b (Blue): -5.19 Maximum
Standard chip composition: Blend of K-Resin SB Copolymer Grade KR03 or equivalent with clear polystyrene (Chevron 3710 or equivalent). Vary ratio until blue target is obtained.

Haze is measured in accordance with ASTM specification D1003-95. Blue and Yellow are measured using a Hunter Laboratory Model D25 DP-9000 Colorimeter.

The standard clarity/color chip formulations described in 4.2.1.1 are used to mold the standard chips used for evaluation of hanger appearance. These formulations and other polymers and polymer blends maybe used for actual hanger production as long as the finished hanger conforms to all of the standards.

4.2.1.2 High Temperature Creep

Hangers should be manufactured from materials that retain mechanical integrity at elevated temperatures reasonably expected to be encountered in transit. Elevated temperature creep properties will be evaluated using bottoms hangers. A 1 pound load will be clamped normally within the pad (see figure below). Garment thickness will be between 0.1" and 0.2" (2.54 and 5.08mm). The loaded hanger will then be heated to a temperature of approximately 140°F (60 C) and maintained at that temperature for a period of 48 hours. The hanger will be judged acceptable if the load garment is not released by the hanger within the 48 hour test period.



4.2.1.3 Low Temperature Impact Resistance

Hangers should be manufactured from materials that retain shatter resistance at low temperatures reasonably expected to be encountered in transit. Cold impact resistance of the hanger will be evaluated by first refrigerating tops or bottoms hangers to a temperature of approximately 32°F (0 C) for at least 2 hours. The chilled hanger will then be slid from a table or other suitable surface from a height of approximately 3 feet (91.4cm) on to a concrete floor. Separate hangers will be dropped in various orientations so that various parts of the hanger impact the floor. The hanger shall be judged acceptable if it does not fracture (per Section 7.3).

4.2.1.4 Fracture/Shatter Resistance

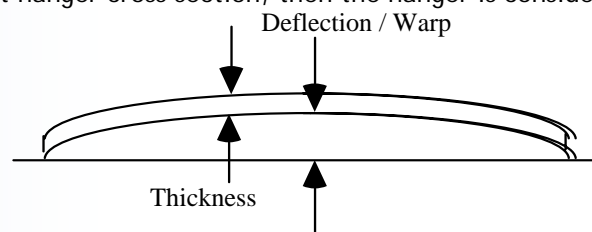
A fracture is defined as a crack propagating throughout the entire thickness of any given section, or a complete separation into two or more pieces.

4.2.1.5 Profile Drawings

Plan drawings for the required Top Hanger Profile, and the Bottom Hanger Profile can be acquired by contacting Voluntary Interindustry Commerce Solutions (VICS) Association, 1009 Lenox Drive, Suite 202, Lawrenceville, NJ 08648, (609) 620-4562.

4.2.1.6 Warp and Distortion

Hanger warp is measured by placing the unloaded hanger curved side down on a flat surface. The gap is to be measured at its greatest point. If the gap exceeds 1 hanger thickness, where thickness is measured at the thickest hanger cross section, then the hanger is considered to be warped.



4.2.2 Metal Parts

Hooks, spring clips or any other metal components will be silver in appearance, clean and shiny. An appropriate finish to prevent red rust or significant oxidation when exposed to conditions of 95° F(35 C), 95% relative humidity for a period of 48 hours (ASTM B117.03) shall be provided. The expected "brightness" is to be comparable to a bright Zinc plated finish.

All metal components of hangers shall comply with all State and local laws governing the use of heavy metals as defined by a Restricted Substance List (RSL). Restricted substances include, but are not limited to specified maximum trace amounts of Lead, Mercury and Chromium.

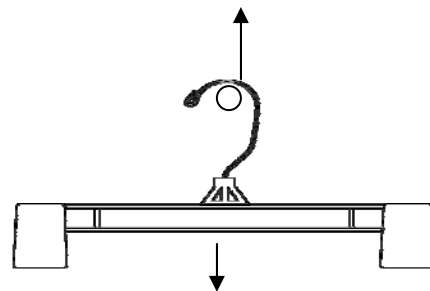
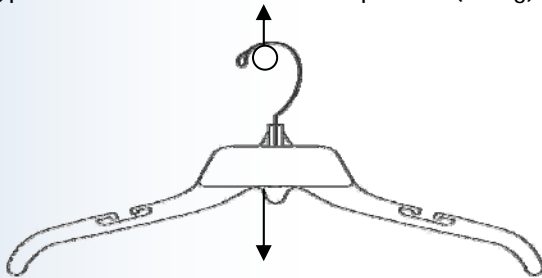
4.2.2.1 Wire Hook Specifications

Wire hooks shall be West Coast Turn-able Ball End Style.

To assure uniform appearance, the nominal wire diameter shall be 0.118" $-.004/+0.020$ " (0.114/0.138").

4.2.2.2 Hook Strength

Hook stiffness and insertion into the hanger body shall be adequate to prevent excessive deformation and premature failure under normal use. Strength, loaded at the 12:00 position will be measured using a universal load frame by positioning the hook on a 1/2" (12.7mm) diameter hardened steel pin and gripping the plastic hanger. Load will be applied at a constant rate of approximately 2" (50.8mm) per minute until a load of 20 pounds (9.1kg) is reached.



The hook will be considered acceptable unless one of the following occurs:

- ◆ The hook fractures (per Section 4.2.1.4) or separates from the hanger
- ◆ The hook deforms so that it falls off of the pin.
- ◆ The hook experiences permanent deformation in excess of .060" measured at the top of the hook after the load is removed.

4.2.3 Size Indicators

4.2.3.1 Hanger Size Indicator Receptacle Design

Receptacles for Lower Neck (Side) size indicators when applicable are to be located on the side of the hook at the base of the neck. Top Cap Size indicators are to be located at the top of the Hook.

The hook boss on wire hook hangers must be capable of attaching and securely retaining various configurations of "Secure Over Hook Sizers (SOHS)" as may be required by the trading partners.

4.2.3.2 Size Indicator Design

All Secure Over Hook Sizer (SOHS) and Lower Neck Size Indicators must be designed to meet the Consumer Products Safety Standards as outlined in Subchapter C - Federal Hazardous Substances Act Regulations. Test methods described in parts 1500.51B will be applicable for impact testing. Test methods described in parts 1500.51C will be applicable for bite testing. Test methods described in part 1500.53E will be applicable for torque testing. Test methods described in part 1500.53F will be applicable for tension testing. In the event of a failure in any of these tests, part 1501.1-5 will apply for the smallest loose piece. Reference ASTM 963-03.

4.2.3.3 Size Indicator Color/Marking

Color schemes of Lower Neck (Side), Top Cap size indicators or Secure Over Hook Sizer (SOHS) will be agreed upon by trading partners. Sizes will be identified in black print on 3 sides of Lower Neck (Side) indicators, 2 of Top Cap indicators. Secure Over Hook Sizers (SOHS) may be printed on 2 or 4 sides.

4.3 Flat, Clear (Department Store) Tops Hangers (Category 1, 6, 7, 9)

4.3.1 Tops Hanger Dimensions

Hangers shall be consistent in dimensions and outline to provide consistent appearance at the point of sale. Hanger dimensions are specified using VICS full scale hanger profile drawings (templates). Acceptable hangers are those that meet the following criteria:

- ◆ Are completely enclosed within the outer perimeter of the appropriate size profile.
- ◆ Completely cover the appropriate inner profile.

4.3.2 Tops Hanger Normal Load Capacity

Tops hangers less than or equal to 15" in nominal length shall be suitable for use in transporting and displaying garments weighing up to 1.5 pounds (0.68kg). Tops hangers greater than 15" long and up to 19" long shall be suitable for use in transporting and displaying garments weighing up to 2.0 pounds (0.91kg).

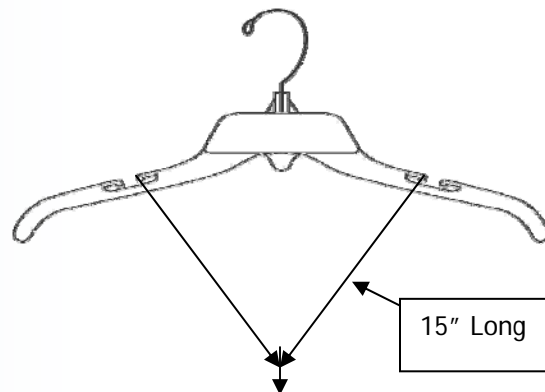
Tops hanger capacity is confirmed by an impact test intended to simulate a garment shipping box falling off the back of a truck at a height 4 feet (122cm). The impact test is performed using a test garment (see attached drawing for test garment specifications) with evenly distributed weights, three

in back three in front, hung over the hanger. The hanger is hooked to a test device which retains the hook. The loaded hanger is then dropped 15" (38cm) in free fall to a rigid stop. The hanger and the weight vest must remain hanging on the test fixture after the impact test and there must be no permanent warp (per Section 4.2.1.6) of the hanger for it to be considered acceptable.

Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.3.3 Tops Hanger Proof Load Capacity

Hangers shall be designed and fabricated to meet specified proof or "overload" conditions. Static proof load will be evaluated using a universal load frame. The hook end will be attached to a 1/2" (12.7mm) diameter pin. The hanger will be loaded at two points located at the recessed points through the top of the hanger using a rigid "Y" cable. The length of each leg of the "Y" cable shall be 15" (38.1cm). The load will be applied at a rate of 2" (50.8mm) per minute until any type of failure occurs. Hanger strength shall be judged acceptable if the hanger does not fracture (per Section 7.3) at a load of 6 pounds (2.72kg) for hangers 15" or shorter, or 12 pounds (5.45kg) for hangers 17" or longer.

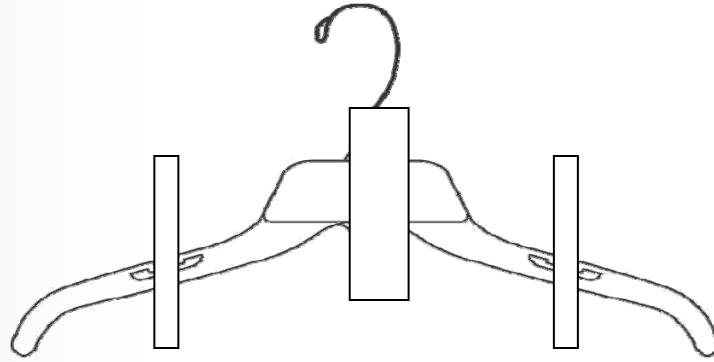


4.3.4 Tops Hanger Flexibility/Rigidity

Flexibility or resistance to shatter will be confirmed using a Bend test. Bend testing will be performed using a 3 point bend fixture and a universal load frame. The arms will be supported by 1/2" diameter rods. The support span will be 12" for hangers 14" or more in length. The support span will be 8" for hangers less than 14" in length. The center of the hanger will be gripped with a 1" (25.4mm) wide support plate. The load will be applied at mid span at a rate of approximately 2" (50.8mm) per minute until either failure or yield occurs. The hanger will be considered acceptable if either of the following events occurs:

- ◆ The hanger is pulled through the support bars without fracturing (per Section 4.2.1.4), or
- ◆ A load of 20 pounds is applied without fracturing the hanger (per Section 4.2.1.4).

Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.



4.3.5 Tops Hanger Thickness

Hangers shall be consistent in thickness to provide consistent appearance at the point of sale. The thickness of the 17" and 19" tops hangers, measured from front to back across the thickest section of the hanger shall fall within the range from 0.300" (7.6mm). The thickness of the 12" and 15" tops hangers, measured from front to back across the thickest section of the hanger shall fall within the range from 0.210" to 0.410" (5.33 to 10.4mm).

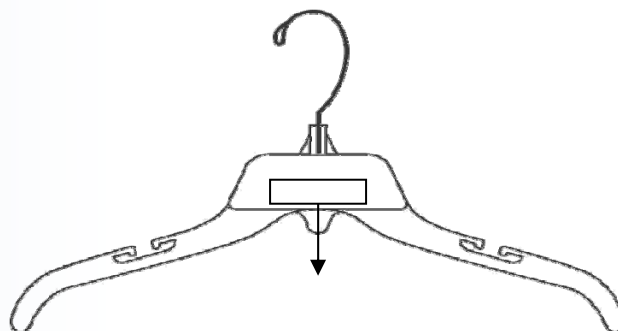
Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.3.6 Coordinate Loop Feature Dimensions

The coordinate loop shall be sized to support the secondary garment at a reasonably consistent height and shall be located on the under side of the hanger, opposite the hook, and substantially centered. The loop shall support a second hanger hook between 2.0" and 2.38" (50.8 and 60.5mm) from the top of the hanger (measured from the base of the hook boss to the bottom of the coordinate loop). The coordinate loop shall allow a hook of diameter specified above to run substantially parallel to the axis of the hanger so that it does not protrude through the front or back planes of the top hanger.

4.3.7 Coordinate Loop Feature Strength

Strength of the coordinate loop shall be adequate to support the secondary garment under normal transit and display conditions. It will be evaluated using a universal load frame. The hanger body will be gripped below the hook and the load will be applied through the loop using a pin the same diameter as the hook. Load will be applied at a constant rate of 2" (50.8mm) per minute. The loop will be considered acceptable if a load of 25 pounds (11.4kg) does not result in fracture of the loop (per Section 4.2.1.4).



4.4 Flat, Clear, Type 2 (U-Beam) Knitwear Tops Hangers (Category 3)

Application: Type 2 (U-Beam) Sweater/Knit hangers are for use with sweaters, knit tops and other knitwear garments as may be determined by the trading partners.

- ◆ Logo: Brand name logo on hangers is an issue to be agreed upon between trading partners.
- ◆ Hangers are to be suitable for reuse.

4.4.1 Hook Tip

Hook end must be Ball Tip type (West Coast Turn-able) to prevent snagging on knitted garments.

4.4.2 Hook Height

To assure uniform appearance in display applications and provide for differing collar heights in sweaters and knits, the standard hook height is provided. The appropriate hook height for any given application shall be agreed upon by trading partners. Each hook is to be measured from the top of the hanger body to the inside of the top of the hook (the point on which the hanger rests when suspended on a 0.5" (12.7mm) bar) as indicated below. The standard hook shall measure $3.75 \pm .188$ " (95.3 + 4.8mm).

4.4.3 Sweater/Knit Hanger Normal Load Capacity

Sweater/Knit hangers 15" in nominal length shall be suitable for use in transporting and displaying garments weighing up to 1.5 pounds. Sweater/Knit hangers greater than 15" long and up to 19" long shall be suitable for use in transporting and displaying garments weighing up to 2.0 pounds.

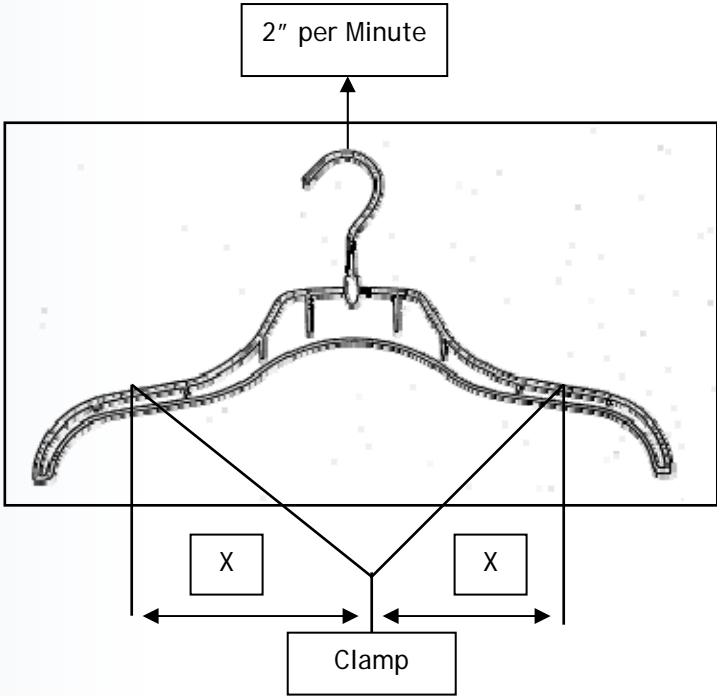
Sweater/Knit hanger capacity is confirmed by an impact test intended to simulate a garment shipping box falling off the back of a truck at a height 4 feet (122cm). The impact test is performed using a test garment (see VICS Test Garment drawing for specifications) with evenly distributed weights, three in back three in front, hung over the hanger. The hanger is attached to a test device which retains the hook. The loaded hanger is then dropped 15" (38.1mm) in a free fall to a rigid stop. To be considered acceptable, the hanger and test garment must remain hanging on the test fixture after the drop and there must be no permanent warp of the hanger (per Section 4.2.1.6).

Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.4.4 Sweater/Knit Hanger Proof Load Capacity

Sweater/Knit hangers shall be designed and fabricated to meet specified proof or "overload" conditions. Static proof load will be evaluated using a universal load frame. The hook end will be attached to a 1/2" (12.7mm) diameter pin. The hanger will be loaded at two points on the shoulders on the top of the hanger arms equidistant from the center of the hook using a rigid "Y" cable. The length of each leg of the "Y" cable shall be 15" (38.1mm). A vertical load will be applied at a rate of 2" (50.8mm) per minute. Minimum acceptable hanger strength (no fracture per Section 4.2.1.4) shall be at a load of 6 pounds for hangers 15" or 12 pounds for hangers 17" or longer.

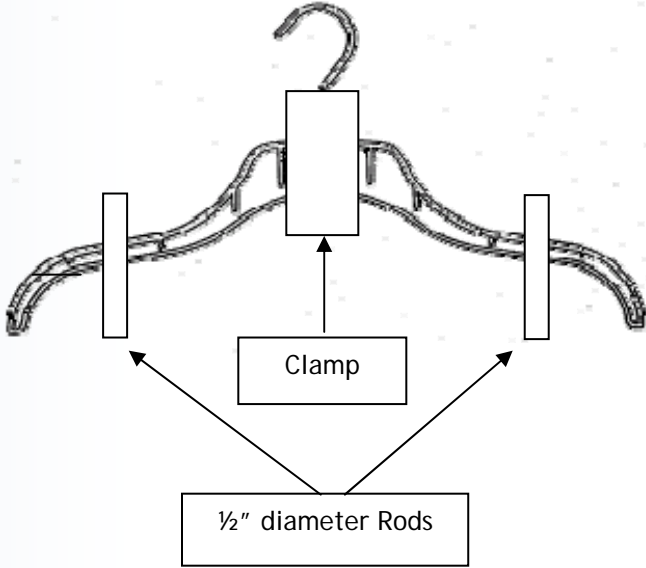
Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.



4.4.5 Sweater/Knit Hanger Flexibility/Rigidity

Flexibility or resistance to shatter will be confirmed using a Bend test. Bend testing will be performed using a 3 point bend fixture and a universal load frame. The arms of the hanger are supported by 1/2" (12.7mm) diameter rods. The support span is 12" (30.5cm) for hangers 16" or more in length and 8" (20.3cm) for hangers less than 15" in length. The center of the hanger is to be clamped securely using a 1" (25.4mm) wide support plate. A load will be applied at mid span at a rate of 2" (50.8mm) per minute until either failure or yield occurs. The hanger will be considered acceptable if either of the following events occurs:

- ◆ The hanger is pulled through the support bars without fracturing (per Section 4.2.1.4), or
- ◆ A load of 20 pounds (9.08kg) is applied without fracturing the hanger (per Section 4.2.1.4).



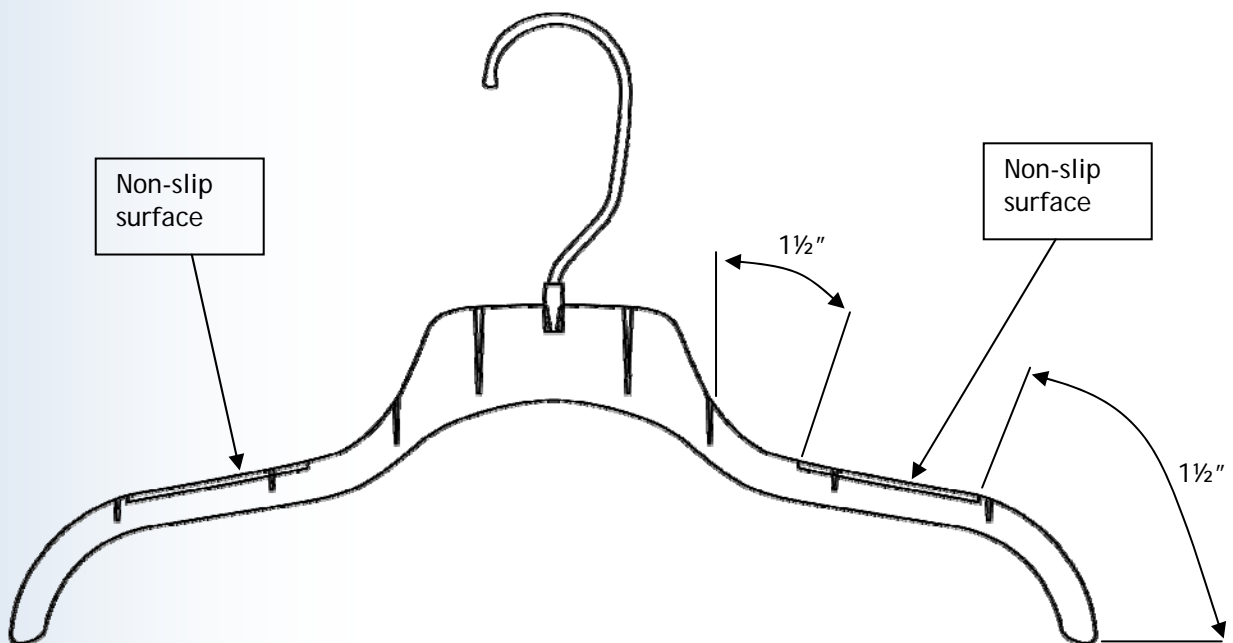
4.4.6 Sweater/Knit Hanger Thickness

Sweater/Knit hangers shall be consistent in thickness to provide consistent appearance at the point of sale. The thickness of the 15", 17" and 19" Sweater/Knit hangers, measured from front to back across the thickest section of the hanger shall be .30" to .38" (7.62 to 9.65mm).

Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.4.7 Non-Slip Shoulder Surfaces

Location of non-slip surfaces on the top edges of the hanger arms must be a minimum of 1 ½" (38.1mm) from the end (tip) of the arm and extend to within approximately 1 ½" (38.1mm) from the start of the arm slope at the base of the neck panel. Non-slip materials are limited to non-foam density materials with frictional surfaces adequate to retain garments in position on the arms of the hanger.



4.5 Bottoms Hangers (Category 2)

4.5.1 Bottoms Hanger Load Capacity

4.5.1.1 Short-Jaw Hangers

Short pad bottoms hangers between 8" and 12" in nominal length shall be suitable for use in transporting and displaying garments weighing up to 1.0 pounds (.454kg).

4.5.1.2 Long-Jaw Hangers

Long pad bottoms hangers between 8" and 12" in nominal length shall be suitable for use in transporting and displaying garments weighing up to 1.2 pounds (.545kg).

4.5.1.3 Long-Jaw (Jeans) Hangers

Long pad bottoms hangers between 12" and 14" in nominal length shall be suitable for use in transporting and displaying garments weighing up to 3.0 pounds (1.35kg).

Bottoms hanger capacity is confirmed by a fabric pull test intended to simulate a garment being pulled from the pad of the hanger. The hanger is hung by the hook and clamped over a fabric, which is fixed. The hanger is pulled away from the fabric at a rate of 2" (50.8mm) per minute until the hanger is pulled off the fabric. The hanger capacity is not to exceed 25% of the maximum, recorded force.

Reference:

- ◆ 8" to 12" Short pad bottoms hangers = 4.0 pound (1.82kg) minimum fabric pull-out capacity.
- ◆ 8" to 12" Long pad bottoms hangers = 4.8 pound (2.18kg) minimum fabric pull-out capacity.
- ◆ Over 12" (14") Long pad bottoms hangers = 12.0 pound (5.45kg) minimum fabric pull-out capacity.

4.5.2 Garment Clip Operation (Pinch Clip)

Ease of opening the garment clip will be measured as the maximum pinch force required to open the clip to its fully-open position. The force shall be measured at the center of the thumb contact area, perpendicular to the hanger hook plane, using a universal load frame. The hanger will be judged acceptable if a load of 16 pounds is not exceeded at the fully-open position.

4.5.3 Garment Clip Life (Pinch Clip)

Fatigue life to failure of the garment clip will be evaluated using an oscillating drive mechanism that actuates the clip from its fully-closed position to fully-open position, as limited by the clip design. The clip will be actuated open and closed at approximately one complete cycle per second. The clip will be judged acceptable if the clip has not fractured or failed within 500 cycles.

4.5.4 Deformation (Warp) Under Load

Deflection or distortion of the bottoms hanger at full load capacity, per Sec 4.5.1.3 above, shall not exceed one (1) hanger thickness, as defined in Sec 4.2.16 (Warp/Distortion).

4.6 Infant, Toddler, and Children Hangers (Category 10)

4.6.1 Color Match

Approved color for children’s hangers is White.

4.6.2 Hook/Coordinate Hook Design

The hook must be designed to prevent interlocking of hangers when they are used on bagging machines, rail systems and steam tunnels. Coordinate hook s must be designed to pass over the hook and size web of the top hanger and rest below the size indicator. Hook length will be agreed upon between trading partners.

4.6.3 Hook/Coordinate Hook Strength

Hook stiffness shall be adequate to prevent excessive deformation and failure. Procedures as stated in Hanger Performance Specifications Section II, 3.2 should apply with the following capacity adjustments:

Tops; Bottoms; Coordinate Hook Hangers	15 lb. (6.81kg) Capacity
Frame Hangers	10 lb. (4.54kg) Capacity

No specifications for permanent deformation will be considered.

4.6.4 Flat Tops Hangers and Frame Hangers

Per Sec 4.2 General Specifications

4.6.5 Bottoms Hangers

Per Sec 4.2 General Specifications

4.6.6 Logo Identification

The inclusion of brand name logos on hangers will be an issue to be agreed upon between trading partners.

4.6.7 Specialty Hangers

Inclusion of specialty hangers will be an issue to be agreed upon between trading partners. All specialty hangers must meet product and performance standards listed above.

4.7 Intimate Apparel Hangers (Category 8)

4.7.1 Intimate Apparel Hanger Dimensions

Hangers shall be consistent in dimensions and VICS Profile outline to provide consistent appearance at the point of sale. Acceptable hangers are those that meet the following criteria:

- ◆ Hangers comply with the approved VICS Profile Outline Drawing
- ◆ Hangers are completely enclosed within the outer perimeter of the VICS size profile.
- ◆ Hangers completely cover the appropriate inner profile.
- ◆ Hangers meet the following dimensions:

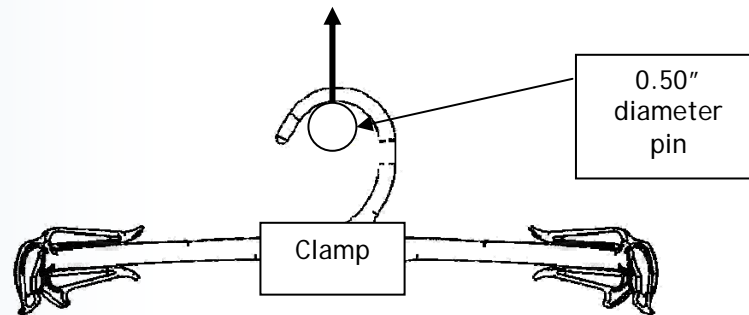
Dimensions				
		Plain	Logo	Strapless
Opening of Hook	Minimum	1.5(38.1mm)	1.5(38.1mm)	1.7(43.2mm)
	Maximum	1.6(40.6mm)	1.6(40.6mm)	1.9(48.3mm)
Inside Height of Hook	Minimum	2.2(55.9mm)	2.2(55.9mm)	2.6(66mm)
	Maximum	2.3(58.4mm)	2.3(58.4mm)	2.8(71.2mm)
Length	Minimum	9.9(25.1cm)	9.9(25.1cm)	11.7(29.7cm)
	Maximum	10.2(25.9cm)	10.2(25.9cm)	12.1(30.7cm)

4.7.2 Hook Specifications

The hook of the intimate apparel hanger will be adequate to prevent premature failure and deformation under normal use.

4.7.3 Hook Strength

The hook strength, loaded at the top contour of the hook (12:00 position of the inside curve) will be measured using a universal load frame by positioning the hook on a 1/2" (12.7mm) diameter steel pin and gripping the plastic hanger. Load will be applied at a constant rate of approximately 1" per minute until a load of 1½ pounds (0.68kg) is reached. The hook will be considered good unless the hook fractures.



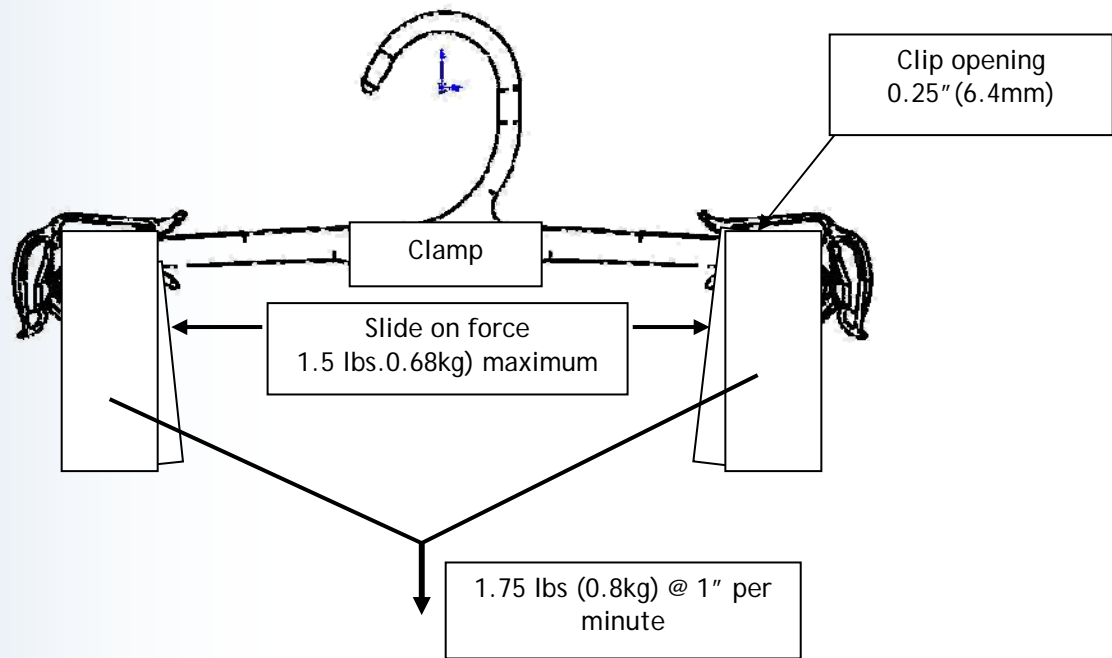
4.7.4 High Temperature Creep

Intimate apparel hangers should be manufactured from materials that maintain mechanical integrity at elevated temperatures reasonably expected to be encountered in transit. Evaluation will be deemed good if a load of 1 pound remains hanging at a temperature of 120 degrees Fahrenheit [\(49 C\)](#) for a period of 48 hours.

4.7.5 Intimate Apparel Hanger Proof Load Capacity

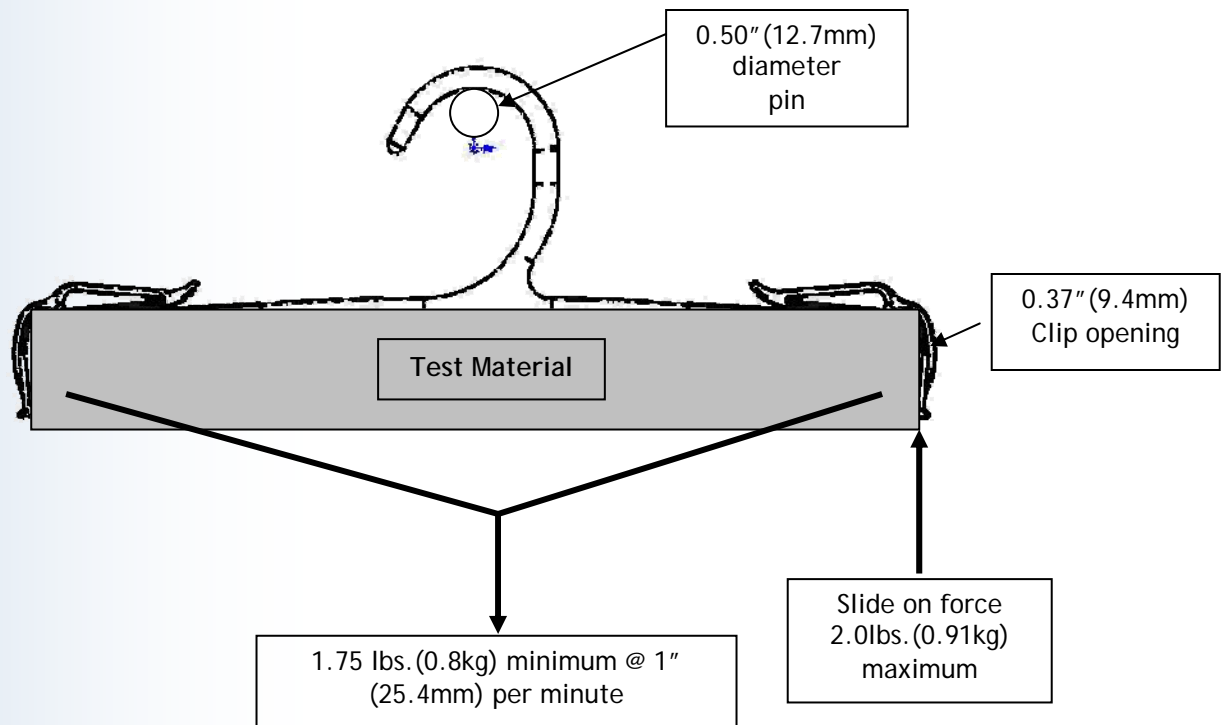
4.7.5.1 Top and Bottom (Horizontal) Clip Performance

- ◆ Test material: non-elastic bra-strap fabric of the specified dimensions common to applicable garments.
- ◆ Slide on pressure at top/bottom clip: In order to minimize repetitive motion syndrome in the industry, the maximum allowable pressure to slide a garment into the clip area is 1.5 pounds (0.68kg) measured using the specified test material $\frac{3}{4}$ " (19mm) wide x 0.045" (1.14mm) thick.
- ◆ Clip opening: The clip must be able to accept the specified test material at a thickness of .250" (6.4mm) and in doing so retain its holding power and not mar the garment. Holding power: The top/bottom clip must be capable of holding the specified test material $\frac{3}{4}$ " (19mm) wide x 0.045" (1.14mm) thick. Clamp the hanger body at the center with the specified test material looped securely through the top and bottom clips at both ends. Using a universal load frame, apply a downward force at 1" (25.4mm) per minute at the center. The minimum force to remove the test material = 1.75 pounds (0.8kg).



4.7.5.2 Vertical End Clip Performance

- ◆ Test material: standard panty waist band material of the specified dimensions common to applicable garments.
- ◆ Slide on pressure: In order to minimize repetitive motion syndrome in the industry, the maximum allowable pressure to insert the specified test material 0.136" (3.5mm) thick into the end clips shall be LESS than 2 pounds (0.91kg).
- ◆ Clip opening: The vertical clip must accept the specified test material at a thickness of 3/8" (9.5mm) while retaining the minimum holding power (1.75# or 0.8kg) and not marring the test material.
- ◆ Vertical Clip garment pull-out force: the minimum pull-out force for the specified test material at 0.068" (1.72mm) thick = 1.75 pounds (0.8kg).
- ◆ Vertical clip pull-out test: with the specified test material attached to both end clip; suspend the hanger over a 0.50" (12.7mm) diameter pin located at the inside top of the hook. Using a universal load frame, apply a downward force at 1" (25.4mm)/minute at the center of the test material. The force to pull-out the specified test material must be greater than 1.75#(0.8kg).



4.7.8 Intimate Apparel Wrap Hangers

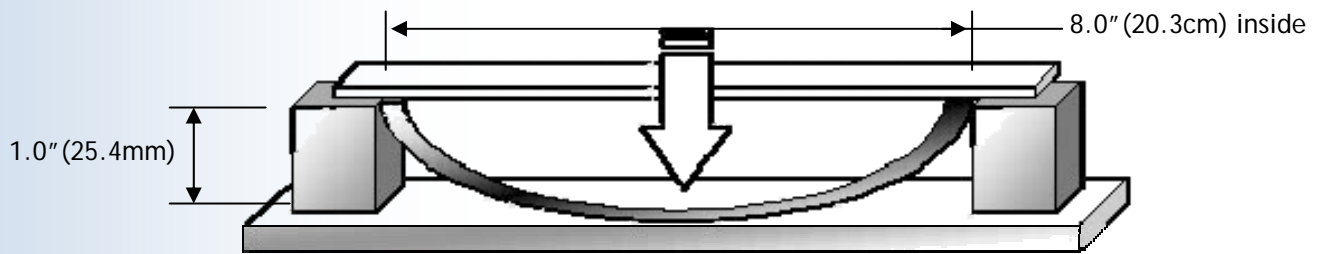
- ◆ Hangers designed to hold garments with elastic waistbands (Bottoms) by means of wrapping the waistband around appendages projecting downward from the hanger body.
- ◆ The garment retention force is directly related to the tension of the elastic waistband which will vary in accordance with stretch required to attach the garment to the hanger.
- ◆ Acceptable retention is achieved by selecting the appropriate appendages to securely retain the garment during transit and display without extraordinary bowing or distortion of the hanger.

4.7.9 Logo Identification

Brand name logo on hangers and additional hanger styles is an issue to be agreed upon between trading partners.

4.7.10 Intimate Hanger Flexibility Test

- ◆ To assure hangers have adequate flexural strength to resist cracking or shattering in normal use.
- ◆ Suspend the hanger centrally across two, 1.0" (25.4mm) high blocks spaced 8.0" (20.3cm) apart (see diagram). Apply a downward force at the center of the hanger at 1" (25.4mm) per minute for a distance of 1.0" (25.4mm).
- ◆ Hangers are acceptable if there is no evidence of stress cracking or breakage.



4.8 Department Store Jacket and Outerwear Hangers (Category 4 & 5)

4.8.1 Type 1 - I-Beam Section Hangers

4.8.1.1 High Temperature Creep

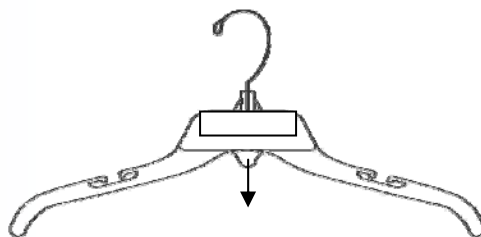
Hangers should be manufactured from materials that retain mechanical integrity at elevated temperatures reasonably expected to be encountered in transit.

Type 1 Hangers: A 7.5 pound (3.4kg) load is to be uniformly distributed in the test garment and centered on the test hanger. The loaded hanger will then be heated to a temperature of approximately 120°F(49 C) and maintained at that temperature for a period of 24 hours. The hanger will be judged acceptable if the load garment is not released by the hanger within the 24 hour test period, and if the total vertical deflection of the hanger end is less than 1 inch (25.4mm).

4.8.1.2 Coordinate Loop Specifications

Type 1 hangers shall be provided with a coordinate loop. The coordinate loop shall be sized to support the secondary garment at a reasonably consistent height and shall be located on the under side of the hanger, opposite the hook, and substantially centered. The loop shall support a second hanger hook between 2.0" and 2.38" (50.8 and 60.5mm) from the top of the hanger (measured from the base of the hook boss to the bottom of the coordinate loop). The coordinate loop shall allow a hook of diameter specified above to run substantially parallel to the axis of the hanger so that it does not protrude through the front or back planes of the top hanger.

Strength of the coordinate loop shall be adequate to support the secondary garment under normal transit and display conditions. It will be evaluated using a universal load frame. The hanger body will be gripped below the hook and the load will be applied through the loop using a pin the same diameter as the hook. Load will be applied at a constant rate of 2"(50.8mm) per minute. The loop will be considered acceptable if a load of 25 pounds(11.4kg) does not result in fracture of the loop (per Section 4.2.1.4).



4.8.1.3 Normal Load Capacity

Type 1 hangers shall be suitable for use in transporting and displaying garments weighing up to 5.0 pounds. Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.8.1.4 Tops Hanger Thickness

Hangers shall be consistent in thickness to provide consistent appearance at the point of sale. The thickness of Type 1 hangers, measured from front to back across the thickest section of the hanger shall fall within the range from 0.50" to 0.60" (12.7 to 15.2mm). Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

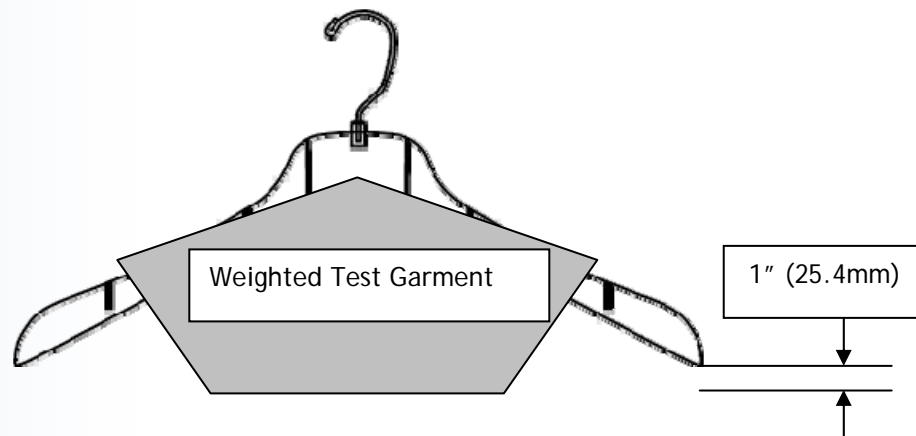
4.8.1.5 Wire Hook Gauge

To assure uniform appearance, the nominal diameter of the hook for a Type 1 hanger shall be $0.118" - .004" + .020" = 0.114" / 0.138"$ (2.9 / 3.5mm)

4.8.2 Type 2 - U-Beam Section Hangers

4.8.2.1 High Temperature Creep

Type 2 Hangers: A 6 pound load is to be uniformly distributed in the test garment and centered on the test hanger. The loaded hanger will then be heated to a temperature of approximately 120°F and maintained at that temperature for a period of 24 hours. The hanger will be judged acceptable if the load garment is not released by the hanger within the 24 hour test period, and if the total vertical deflection of the hanger end is less than 1 inch (25.4mm).



4.8.2.2 Normal Load Capacity

Type 2 hangers shall be suitable for use in transporting and displaying garments weighing up to 4.0 pounds (1.82kg). Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.8.2.3 Tops Hanger Thickness

Hangers shall be consistent in thickness to provide consistent appearance at the point of sale. The thickness of Type 2 hangers, measured from front to back across the thickest section of the hanger shall fall within the range from 0.50" to 1.10" (12.7 to 27.9mm).

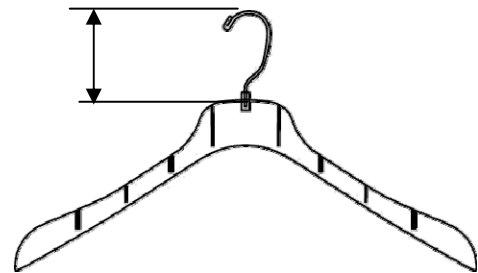
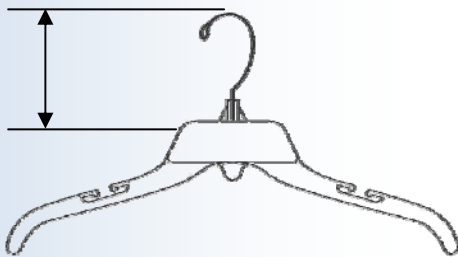
Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.8.2.4 Hook Specifications

The nominal diameter of the hook for a Type 2 hanger shall be $0.162'' \pm 0.002'' = 0.160'' - 0.164''$ (4.06 to 4.17mm).

4.8.3 Hook Height Type 1 and Type 2 Hangers

To assure uniform appearance in display applications and provide for differing collar heights in outerwear, two standard hook heights are provided. The appropriate hook height for any given application shall be agreed upon by trading partners. Each hook is to be measured from the top of the hanger body to the inside of the top of the hook (the point on which the hanger rests when suspended on a 0.5" (12.7mm) bar) as indicated below. The standard hook shall measure $3.75'' \pm 0.188''$ (95.3 + 4.8mm). A "long" hook shall measure $5.25'' \pm 0.188''$ (133.4 + 4.8mm).



4.9 Swim Wear/Active Wear Hangers (Category 7)

4.9.1 Hanger Dimensions

- ◆ Hangers must comply with the approved VICS Swim Wear/Active Wear Hanger Profile Templates. (Contact VICS.org).
 - ◆ Adult size hangers are 10", 12" and 14".
 - ◆ Children's size hangers are 8" & 10".
 - ◆ Minimum Beam thickness for all sizes of Swim Wear/Active Wear hangers is .312" (7.9mm).
 - ◆ Pinch Clips located within 0.25" (6.4mm) from ends of arms.
- Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.9.2 Normal Load Capacity

- ◆ 8" and 10" hangers capable of supporting garments up to 1.5 pounds(0.68kg).
 - ◆ 12" and 14" hangers capable of supporting garments to 3.0 pounds(1.36kg).
- Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.

4.9.3 Hook Specifications (Metal)

- ◆ Hook end must be Ball Tip type (West Coast Turn-able) to prevent snagging of delicate fabrics.
- ◆ Hook wire gauge = $0.118'' - .004'' + .020'' = 0.114''/0.138''$ (2.9mm to 3.5mm).
- ◆ Nominal hook opening = $2.0'' +/- .188''$ (50.4 +/- 4.8mm)
- ◆ Hook strength per Section 4.2.2.2

4.9.4 Hook Height (Metal and Plastic)

- ◆ To assure uniform appearance in display applications a standard hook height is provided. Hooks are measured from the top of the hanger neck panel to the inside of the top of the hook (the point on which the hanger rests on a display rack.)
- ◆ The standard metal hook shall measure $3.75 \pm .188''$ (95.3 + 4.88mm).
- ◆ The standard plastic hook shall measure $3.00 \pm .188''$ (76.2 + 4.8mm)

4.9.5 Pinch Clip Operation

- ◆ Smooth gripping surfaces
- ◆ Opening: internal = $.625''$ (15.9mm) minimum, Grip depth = $.75''$ (19mm) minimum.
- ◆ Over-all size: $1.0''$ (25.4mm) wide x $2.0''$ (50.8mm) long.
- ◆ Maximum force to full open: 16 pounds (7.26kg).
- ◆ Garment pull-out force: 4.0 pounds (1.82kg).

4.9.6 Shoulder Strap Clip (Horizontal)

- ◆ Minimum strap opening: $1.75''$ (44.5mm) Adult, $1.00''$ (25.4mm) Children's
- ◆ Horizontal hold (per Sec 4.7.5.1)

4.9.7 Deformation (Warp) Under Load

Deflection or distortion of the hanger at full load capacity shall not exceed one (1) hanger thickness.

Hangers to be of minimal plastic weight to meet prevailing dimensional, functional and performance specifications.