

HIMACS Quality Inspection

HM2050

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Introduction

This section addresses how to inspect the quality of HIMACS products before working on them.

Overview

LX Hausys is continuously improving its manufacturing processes and controls to offer the highest quality of HIMACS products. However, prior to use or fabricate HIMACS products, inspection for defects or color match are essential. The inspection will make more efficient work and better quality for your finished products.

Note !

Do not work with products that have unsure quality. Please, contact and discuss to your distributor or supplier when you found defects or color match problem on HIMACS products when delivered.

LX Hausys will replace HIMACS products not meeting specifications when delivered. However, any fabrication costs or installation costs or handling cost on defective HIMACS products will not be covered or payed by LX Hausys.

Note !

1. This guideline has been created to provide technical information for successful fabrication and installation of HIMACS, and it is intended to be used in a safe environment considering their own discretion and risk by who has technical skill for fabrication and installation of HIMACS.
2. This guideline is continually revised to provide reliable and up-to-date information, replacing all previous versions of the guideline and technical information, however the usage and conditions of use are beyond LX Hausys control, LX Hausys cannot guarantee the suitability of material, fabrication and installation for all usage and conditions of use. Users should not regard or rely on this guideline as a complete, sole, up-to-date or absolute information. HIMACS users, fabricator and installer should review whether the design for HIMACS, fabrication method, installation method and required performance are suitable for the intended use and conditions of use. LX Hausys shall not be liable for any direct or indirect, commercial damages or losses caused by the fabrication and installation results of HIMACS using any or all of these guideline. In addition, the results of joining with other materials, and the fabrication and installation guidelines for other materials shall not be covered by LX Hausys.
3. This guideline does not encourage to violate any laws, patents and licenses, and cannot be used as a basis for legal liability. All works on / from HIMACS must be performed in accordance with related laws and regulations.
4. LX Hausys reserves the right to change the technical information and disclaimers in this guideline for technical development and further information, and the use of HIMACS or this guideline is considered to accommodate the information and changes provided in this guideline. Therefore, please check the changed details of this guideline from time to time.
5. LX Hausys reserves all information in this material, and no reproduction or alteration is permitted in any way for all or any part of the information without the official written permission of LX Hausys.

Visit our web site at www.lxhausys.com for the latest version of HIMACS fabrication guidelines.

Contact LX Hausys HIMACS territory manager or distributor of your market for specific questions and information.

1. Common Shipment Inspection

As the materials is offloaded, inspect the shipment

- Confirm that the quantities and colors of all HIMACS products are exactly as ordered.
- Verify HIMACS sheets number sequences are as required for any multi-sheet projects. Please refer to document 'HM2031 HIMACS Sheet Number'.
- Check for damage to the factory-applied peel coat or box which may indicate damage to HIMACS products.
- For HIMACS sheets look for any irregular edges or corners, bending, twisting, or warping, as well as thickness variation that is easily noticed (inspect more closely before fabrication).

Useful Tip!

If a product defect is found, mark the material and record the defect. If possible, photograph the area of concern on the s HIMACS products and the material identification. Always make a written record of

- Product color name
- Identification (such a 'lot number')
- The quantity of material believed damaged or defective

And, promptly inform this information to your distributor or LX Hausys manager.

2. HIMACS Sheets Inspection

The table below shows the inspection items and specification of HIMACS sheets. Please refer to specifications and 'Remark' for your HIMACS sheets inspection

Table 2. HIMACS Sheets specification

Inspection items		Specification	Remark
Color, pattern difference	Solid	Less than ΔE 0.8	2-1
	Others	Irregular distribution	
Dimension	Thickness	$\pm 0.4\text{mm}$	2-2
	Width	Less than +10mm	
	Length	Less than +10mm	
Flatness	Smile warping	Less than 1.5 mm / m	2-3
	Frown warping	Less than 1.5 mm / m	
Face side	Dark spots	Less than 0.7 mm ² size	2-4
	Light spots	Less than 2ea / m ²	
	Pin holes, voids	None	
Back side	Pin holes, voids	Less than $\Phi 2.0$ mm size Less than 50ea / m ²	2-5

2-1. Color and pattern difference

Checking the color match between sheets and color inconsistency within sheet are essential inspection for HIMACS sheets. Due to the composition and manufacturing process of HIMACS sheets, there are slight color variations between production cycles. In addition, each color group of HIMACS sheets has their unique esthetic with color difference within same sheet because they composited by chip, vein and glitters.

LX Hausys does not guarantee color match between different lot number HIMACS sheets or perfect match for each color group having unique esthetic with color difference. To ensure the best and acceptable color match is up to fabricator and installer. Therefore, LX Hausys strongly recommend to follow strict guidelines below and refer to document 'HM2021 HIMACS Sheet Information' to enhance color match between or within HIMACS sheets .

Color match

- Check the sheet number printed on side edge of each sheet and use same lot number sheets. Easy way is using the sheets on same pallet. Refer to document 'HM2031 HIMACS Sheet Number'.
- Do a rapid check by gluing 2 small pieces together and visually check the color matching result.
- The color difference between solid color sheets in same lot number should be less than ΔE 0.8

Color irregularity within sheet

- If you find blotches within sheet when you inspect solid color sheets, contact your supplier for inspection and replacement.
- Concrete, Aurora and Marmo are the veined color groups that have intentionally, irregularly, randomly distributed unrepeatable veins. The natural aesthetic by vein is the unique and gorgeous point of veined color group, and veined pattern on face side and/or edge are not same within sheet and/or sheet to sheet. Therefore, the sheets of veined color group should be carefully fabricated through exclusive guidelines. Refer to document 'HM2021 HIMACS Sheet Information.' and 'HM2140 HIMACS Fabrication for Specific Colors'.
- Granite, Lucia, Volcanics and Aster are the chip color groups that have emphasized design through irregularly distributed small or large chips in a sheet. Therefore, irregular chip distribution itself is not a defect factor. However, if you find abnormal chip distribution part as against other normal part within sheet or between sheets in same lot number, contact your supplier for inspection and replacement.
- Some HIMACS sheets have sparkling effect due to the glitter chips. However, due to the shape of the glitter chip, sparkling effect are not seen on edge and section but only face side. Therefore the missing of sparkling effect on edge and section is not defect factor. For better fabrication please refer to document 'HM2021 HIMACS Sheet Information' and 'HM2140 HIMACS Fabrication for Specific Colors'.

Useful Tip!

- Record the sheet number printed on edge and back side together. It is useful for color match when you work on HIMACS sheets, sometimes the lot number on edge and back side do not match but they are still helpful.
- Gluing with cyanoacrylate adhesive (super glue) is fast and simple way checking trial color match.
- Never inspect the color under bright lights like direct sunlight.

Note!

- Never use HIMACS sheets that have different dimensions or different sheet number to join together. It is not right way to make acceptable color match. Please refer to document 'HM2031 HIMACS Sheet Number'.
- HIMACS sheets are intended to use only face side, edge and section of thickness direction for exposed surface. Therefore,

back side (under side) is not valid area for color and pattern quality check and consideration.

2-2. Dimension

- For standard dimension information, refer to document 'HM2021 HIMACS Sheet Information'.
- HIMACS sheets serve additional size up to 10 mm for length and width. This additional size as buffer zone protects the primary usable area from direct damage such as edge cracks and scratches that may occur during transportation and handling.
- The finish of the edge section surface is not perfect for joining, so the original edge of sheets should cut off before join. Refer to document 'HM2080 HIMACS Cutting and Cutout'.

Note !

Defects on the additional size are not claim factor.

2-3. Flatness

Any shape of warping should be less than 1.5mm / m when delivered.

Useful Tip !

In all process to handle HIMACS sheets, unexpected warping can be avoided through strict following guidelines. Please refer to document 'HM2040 HIMACS Safe Handling Storage and Transportation'.

Note !

The warping that occurred by not following HIMACS sheets guidelines will not be covered by LX Hausys.

2-4. Face side defects

Minor defects (i.e., small stains, scratches, ripples and etc.) are removal by sanding. However, if you find more serious defects, please contact your supplier for inspection and replacement.

2-5. Back side defects

HIMACS sheets are one-sided material. Therefore, minor defects (i.e., small stains, scratches, ripples and etc.) on back side does not affect the quality of finally finished product, and are removal by sanding. However, if you find more serious defects, please contact your supplier for inspection and replacement.

3. HIMACS Adhesive Inspection

- Check the label for manufactured date and color
- Check if there are breakages in the appearance (i.e., cartridge, tube and accessories).
- Check if the contents flowed out.

For more detailed inspection information refer to 'HM2022 HIMACS Adhesive Information'.

4. HIMACS Shape Inspection

The table below shows specification of HIMACS shapes. Please refer to table below for HIMACS shapes inspection. For more detailed inspection information refer to 'HM2023 HIMACS Shape Information'.

Table 4. HIMACS Shapes specification

Inspection Items	Standard	Specification tolerance
Color	Standard color of HIMACS sheets	Max. ΔE ≤ 0.7
Surface	Smooth sanding	Visible surface(Bowl inside) = 320Grit, Invisible surface(Bowl outside) = 80Grit
	No scratch, white and black point, sanding mark, crack, dust and any impurities.	Visible surface ≤ ø 0.2 mm 2ea, Invisible surface ≤ ø 0.5 mm 4ea But, only 2ea are allowed in ø 100mm
	No Air hole	Size ≤ ø 0.2 mm, Depth ≤ 0.2mm Each surface ≤ 2ea, Total surface ≤ 5ea But, only 2ea are allowed in ø 100mm
	Surface should be smooth and no undulation.	Undulation in +0.5 mm in ø300
Performance	To keep the CE Certification (EN 13310 2003)	
Total size	Width/Length in drawing	±3mm
Flange	12mm Thickness	+2mm, -1mm
	Edge between flange top and bowl vertical surface should be sharp.	≤ R0.2 mm
	Width(20mm/25mm)	±1 mm
	Top surface should be flat	±0.5 mm
Over flow hole	No Crack	0ea
Drain Hole	No problem to assemble drain accessories.	No problem
	The drain cover should be located under level than bottom of the bowl after assemble at drain hole.	Level gap ≥ 0mm
Bottom	Water should be drained though proper sloped surface.	No stagnant water.

Only one color is available for HIMACS shapes currently. The color is Alpine White of HIMACS sheets. HIMACS shapes and Alpine White HIMACS sheets can make acceptable color match, but not perfect due to the different manufacturing process. Therefore, LX Hausys does

not guarantee color match between HIMACS shapes and HIMACS sheets. To ensure the best and acceptable color match is up to fabricator and installer. Therefore, LX Hausys recommends to do trial match before you fabricating. However, the color difference between shapes in same lot number is stand out significantly, contact you supplier for inspection and replacement.

Referenced documents

'HM2021 HIMACS Sheet Information'

'HM2022 HIMACS Adhesive Information'

'HM2023 HIMACS Shape Information'

'HM2031 HIMACS Sheet Number'

'HM2040 HIMACS Safe Handling Storage and Transportation'

'HM2080 HIMACS Cutting and Cutout'

'HM2140 HIMACS Fabrication for Specific Colors'

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