

Hornisse Floor Heating System Cables



Hornisse floor heating system



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Contents

Important Safeguards and Warnings	1
1 General informations	2
1.1 Use of the manual	2
1.2 Safety Guidelines	2
1.3 Remember to measure resistance	2
1.4 Lifetime Warranty	2
2 Hornisse internal electric heating cable system	3
2.1 Technical data of the internal electric heating cable system	3
2.2 Thermostat technical data	3
2.3 Internal system of electric heating cables – typical installations and applications	3
3 Floor Heating Design and Product Selection	4
3.1 Design the Installation	4
3.2 Confirm Your Product Selection	5
4 Installation	5
5 Commissioning	11
5.1 Insulation Resistance Test	11
5.2 Heating Cable Resistance Test	11
5.3 Sensor Resistance Test	11
6 Troubleshooting	12
EXTENDED WARRANTY	13

Important Safeguards and Warnings



WARNING: Shock and fire hazard

If the Hornisse Cables system is damaged or not installed properly, fire or shock could occur resulting in serious personal injuries or damage to property. You must carefully follow the warnings and instructions contained in this manual.

- The Hornisse thermostat must be used.
- It is important that this equipment is installed only by qualified electricians who are familiar with the proper sizing, installation, construction and operation of floor warming system and the hazards involved. The installation must comply with all national and local electrical codes. If you are unfamiliar with these requirements, contact a electrician.
- The heating cable is designed for under floor heating purposes only. Be sure that the floor is not penetrated by nails, screws, or similar devices that can cause damage on first installation or during subsequent floor repairs in the future.
- If the Hornisse Heating Cables System cable is damaged, it must be replaced. Do not attempt to splice or repair any part of the system

1 General Information

1.1 Use of the Manual

This manual describes the Hornisse Heating System cables — how to design the room, select the product, and install the system. It is important to thoroughly review this manual and the following document prior to installation:

Thermostat Installation and Operation Manual.

For additional information regarding any aspect of the Hornisse Heating System, contact:

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1.2 Safety Guidelines

The safety and reliability of any floor heating system depends on proper design, installation, and testing. Incorrect installation or mishandling of the product can cause damage to the heating cable, system components and property, and can create a risk of fire or shock. The guidelines and instructions contained in this guide are important. Follow them carefully to minimize these risks and to ensure that the Hornisse Heating System cables performs reliably

Pay special attention to the following::

- Instructions marked  Important
- Safety warnings identified as  WARNING

1.3 Remember to measure resistance

The resistance should be measured between the two conductors, blue and brown. Compare this resistance reading to the resistance specified in the Product Selection "Table 1 or Table 2". The value should be within -5%~+10%. If you get a different reading, contact Hornisse.

Also, measure the resistance between the blue, brown and shielding/ground wire. Both should read infinity. If you get a different reading, contact Hornisse.

Please refer to "5 Commissioning" for instructions on how to measure the resistance.



Important: measure the resistance four times during the installation process

Remember to always measure, verify and record the actual resistance throughout the installation process (out of the box, after installation, after thin set cement or self-leveler application and after installation of floor tiles).

1.4 Lifetime warranty

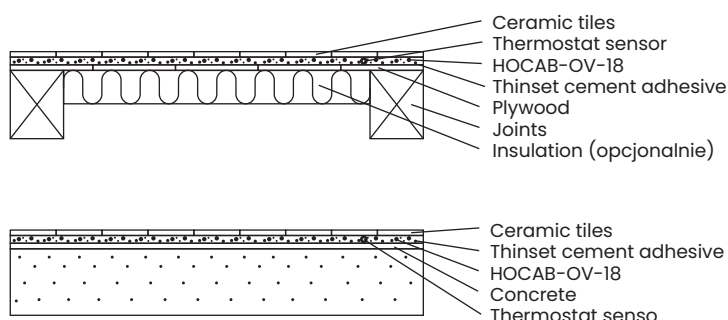
When purchasing products, Hornisse guarantees a lifetime product warranty and that the Hornisse heating cable is free from defects in materials, design and workmanship. The extended warranty is only valid if the warranty card has been correctly completed and sent by post, and the installation is in accordance with the installation instructions.

2 Hornisse Heating System Cables.

2.1 Technical data of Hornisse Heating System Cables.

Cable construction:	Twin conductor
Rated Voltage:	230V
Output:	18W/m
Heating Element Size:	7,5-154,2 m (18 W/m)
Max bending radius:	50mm
Cable Diameter:	3,6mm
Conductor Insulation:	fluoropolymer
Outer Insulation:	PVC
Max. Ambient Temp.:	40°C
Min. Installation Temp.:	5°C
Cold lead:	2-wire plus ground braid; 2.5m length

2.3 HOCAB-OV-18- typical installations and applications



Alternative method: self-leveling cement is recommended for large surfaces and the following floor materials: engineered wood, laminate, floating floors, vinyl, linoleum and carpet.

Warning

Consult the manufacturer for information on special installation requirements for wood, laminate and vinyl or linoleum flooring.

Important

- Read the instructions carefully before installing Hornisse Heating system Cables system.
- Remember to measure the resistance four times.
- Do not install Hornisse Heating system Cables in walls or ceilings.
- The cable must be embedded in mortar, thinset, concrete or similar material.
- The minimum installation temperature is 40°C (5°F).
- The heating cable cannot be cut to length, crossed over itself, or installed too close.
- It is recommended to use copper wire only.
- Remember to check that the supply voltage matches the voltage of the Hornisse Heating System Cables.
- Remember to place the labels as written in this instruction.
- Only for indoor installation.
- Metal structures or materials used for the support of or on which the MiniCable is installed must be grounded in accordance with CSA Standard C22.1, section 10 and the NEC.

Please consult the factory for any other questions or advice.

3 Floor Heating Design and Product Selection

3.1 Design the Installation

Step 1: Measure the heated area

Determine the heated area of the floor where there are no permanent fixtures or furniture such as showers, toilets, vanities, or cabinets. Measure the heated area of the floor.

For example, in Figure 3, the area of the bathroom is 96 ft². When you subtract the area of the vanity shower and toilet, the total heated area is only 74 ft² (6.8m²).

Step 2: Determine the power supply voltage

Make sure the supply voltage was 230 V.



Important

Operating the 230V cable at 220V will reduce 8.5% output, at 240V will add 8.9% output.

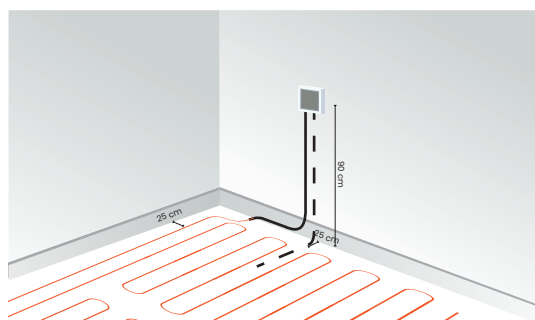
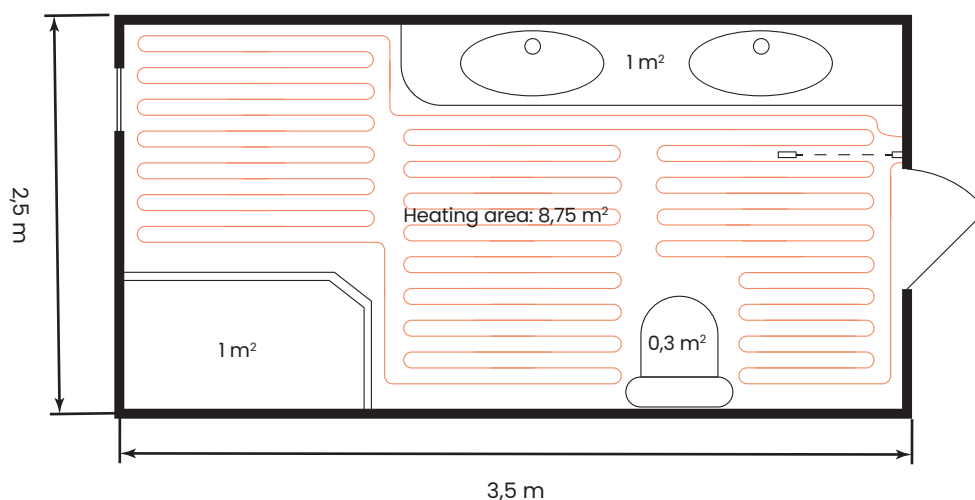
Step 3: Plan the design

Determine the optimum floor heating Cable layout for your heated area to ensure coverage. Select a spot for the thermostat in the wall above the heated area where it can be reached by the 2.5m cold lead on the Hornisse Heating System Cable, and the 3m floor temperature sensor. Please refer to Figure 4.



Important

The predetermined Hornisse Heating System Cable spacing must be maintained to ensure proper floor heating. Do not change the Hornisse heating cable spacing when you lay out the cable or the floor may have cold spots.



3.2 Confirm Your Product Selection

Confirm that your Hornisse Cables is no larger than the heated area. Following the example from Figure 3, if the heated area is 74 ft² (6.8m²), and you if prefer 150W/m², then 6.8*150=1020W, select HOCAB-OV-12-900 or HOCAB-OV-18-935 system.

Catalogue no.	Lenght, m	Watts (12W/m)	Amps, A	Ohms, Ω
HOCAB-OV-18-270	15,0	270	1,2	195,9
HOCAB-OV-18-400	22,2	400	1,7	132,3
HOCAB-OV-18-680	37,8	680	3,0	77,8
HOCAB-OV-18-800	44,4	800	3,5	66,1
HOCAB-OV-18-1100	61,1	1100	4,8	48,2
HOCAB-OV-18-1220	67,8	1220	5,3	43,4
HOCAB-OV-18-1500	83,3	1500	6,5	35,3
HOCAB-OV-18-1900	105,6	1900	8,3	27,8
HOCAB-OV-18-2295	127,5	2295	10,0	23 ,1
HOCAB-OV-18-2775	154,2	2775	12,1	19,1

4 Installation

★ Important: Tools and materials required

You will require the following items to install and test the floor heating system:



Multimeter



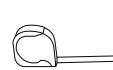
Scissors



Utility knife



Wire strippers



Tape measure



Screwdriver

You will also need the appropriate tools and materials to install your particular floor. These will likely include products like self-leveling mortar, thin-set mortar, backer board, tile, a notched trowel, and any other tools for your specific floor.

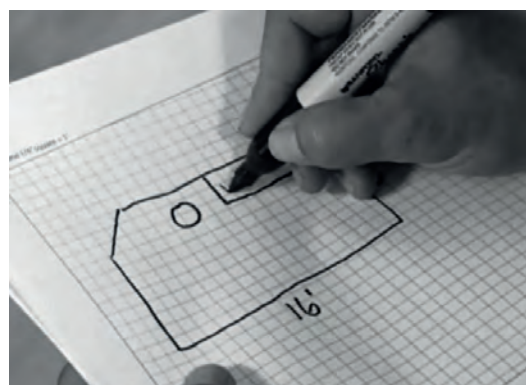
Follow these steps to ensure a successful Hornisse Cables installation.

Step 1: Plan layout

Make a sketch layout or a floor plan of the room; include all permanent furnishings such as toilets, bathtubs, appliances, cabinetry, etc. Indicate all dimensions required to determine the available floor area and the position of the Hornisse thermostat.

★ Important

Hornisse recommends that the installation is documented with photos to note the location of connections and the sensor.

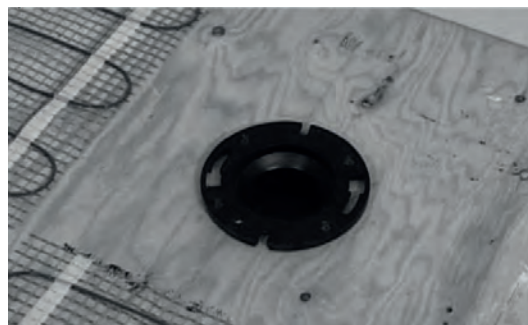


Step 2: Transfer layout to floor

Draw an outline of the layout on the room floor including a foot print of all furnishings that are not yet installed. Unroll the first few feet of the Hornisse heating cable. The starting point of the cable must be placed within 2.5m from the thermostat. Using your floor plan determine your desired spacing of cable and strapping (recommended 0.5-1m apart).

★ Important

Minimum distance between the cables must be 50mm or greater. Mark the position of the connection point between the power lead and the blue Hornisse heating cable. **This connection must be concealed in thinset or self-leveling cement.** When using a floor temperature sensing thermostat, mark the sensor position in the middle of 2 heating cables, about 25cm away from the wall (within the heated area), as close as possible to the thermostat.



Step 3: Install sensor

If using a floor temperature sensing thermostat, install the sensor now, either in conduit tube, or directly to the subfloor. It is recommended that the sensor be installed in conduit tube. This will allow the sensor to be easily replaced in the unlikely event of failure.

The sensor and/or tube needs to be installed between the thermostat wall box and the sensor position. The conduit tube must be partially countersunk into the subfloor. Cut a channel approximately 8cm deep x 8cm wide in the floor and wall up to the thermostat for the sensor conduit. The conduit has to go from the thermostat and minimum of 25cm away from the wall towards the middle of the floor.



★ Important

The sensor conduit must be centered in the cable loop (between two blue heating wires).

Use duct tape to close the end of the conduit so that thinset can't penetrate the conduit. Use duct tape to hold the sensor conduit into the groove to prevent it from floating up when the mortar or thinset is poured. If the sensor is installed directly in the mortar bed, use duct tape to secure to subfloor.

Step 4: Prepare subfloor surface

Clean and vacuum the floor thoroughly and remove dust and debris from the floor that may damage the heating cable.

Ensure that the subfloor is secure and stable. Carefully fill in all cracks to prevent any potential damage to the new tiles resulting from shifts in the subfloor.



Step 5: Measure the resistance (the first time)

Use a digital ohm meter to measure the resistance of the MiniCable and compare it to "Table 1 or Table 2". Record the measured resistance on the warranty card. Documenting the resistance at each stage of installation is required for warranty purposes. Also, measure the resistance between the blue, brown and shielding/ground wire. Both should read infinity.

Please refer to "5 Commissioning" for instructions on how to measure the resistance.

Step 6: Begin laying the Hornisse Cables

Place the cable so that the connection point and the temperature sensor are in their intended positions and bring the power lead cable to the thermostat or connection box.

Begin laying the Hornisse Cables heating cable according to the layout developed in Step 1.

DO NOT CUT OR SHORTEN THE BLUE HEATING CABLE!

Do not expose it to any mechanical stress. Avoid walking on the heating cable. Wear only shoes with soft soles. Use Hornisse strapping to secure the cable to the subfloor. Attach the Hornisse strapping with adhesive, nails, staples, or double-sided tape. Please refer to Step 8 for instructions on how to use the MiniCable strapping.

ENSURE THAT THE SENSOR CONDUIT HAS BEEN PROPERLY INSTALLED BEFORE PROCEEDING (refer to Step 3).

It is highly recommend take photographs of the installed Hornise Calbes before installing the flooring.

Step 7: Measure the resistance (second time)

Please refer to Step 5.

Step 8: Hornisse Strapping instructions

Space the strapping at a distance of 0.5 to 1m (maximum recommended spacing is 1m). Secure the strapping to the subfloor with adhesive, staples, nails, or double-sided tape.

We assume power of not less than 90W/m² in rooms such as bedrooms and not less than 120W in bathrooms or poorly insulated buildings.

Calculation of the H-H distance

H-H means the distance between adjacent sections of the heating cable, in centimeters. The formulas below are used to calculate the C-C interval

$$H-H = \frac{\text{Area m}^2 \times 100}{\text{Cable lenght (m)}}$$

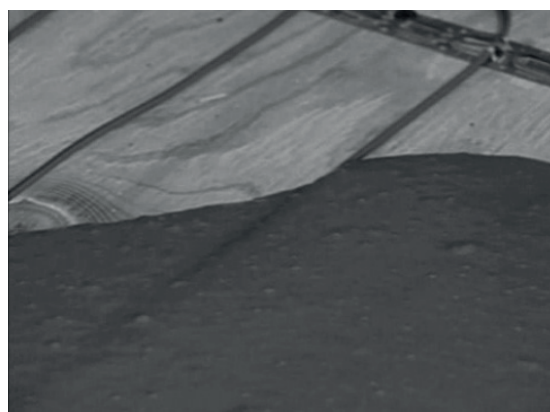
$$H-H = \frac{\text{Power unit cable (W/m)} \times 100}{\text{Unit heating power W/m}^2}$$

Step 9: Embed the floor heating cable in mortar

For tiling applications, proceed with the installation of the tiles by covering the heating cables with a layer of thinset cement as directed by the tile manufacturer. Ensure that the thinset mortar covers the entire heating cable as the tiles are installed.

For engineered wood or laminate floor coverings, it is recommended to consult the flooring manufacturer for maximum temperature allowance (use a thermostat with a floor temperature limiter).

Ensure that all moisture in the self-leveling cement has been fully eliminated in accordance with the drying times recommended by the cement manufacturer (consult the manufacturer for exact drying time).



 Important

The system must not be turned on until the thinset cement has fully dried. A minimum of two weeks is recommended.

Step 10: Measure the resistance (third time)

Please refer to Step 5.

Step 11: Install the tiles

To install the tile, apply a layer of acrylic or latex modified thin-set using the ridged side of your trowel. Tile and grout the floor using best industry practices and in accordance with instructions provided by the manufacturer of the tile.

Step 12: Connect power supply and thermostat

The connection of the power supply and the JH thermostat must be done by a qualified electrician in accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC). The electrician should connect the floor sensor to the thermostat, take the final resistance reading and record it on the warranty card, see Step 13.

Note: You need to mark the appropriate circuit breaker reference label indicating which branch circuit supplies the circuits to those electric space heating cables.

Step 13: Measure the resistance (fourth time)

Please refer to Step 5.

Step 14: Record information and affix labels

It is important for the homeowner to mail in the certificate immediately after installing the system (cable and thermostat). Failure to do so could void the manufacturer's warranty. The warranty is subject to the guarantee conditions listed on the warranty certificate.

Keep a copy of the warranty card for your reference.

Step 15: Enjoy the comfort of HornisseHeating System

The Hornisse heating system is now ready to use. Increase the floor temperature gradually and adjust it until it reaches a comfortable level depending on the type of room and your personal preferences.

5 Commissioning

★ Important

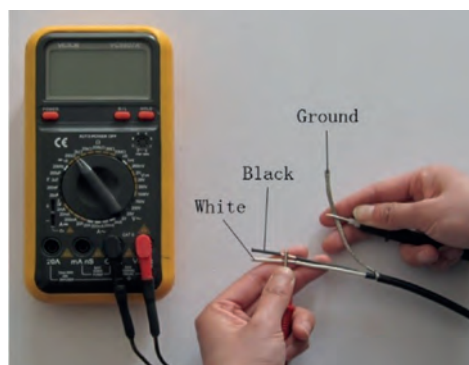
For the extended 15-year limited warranty to apply, you must perform these tests, record the results on the warranty card, and retain a copy of the record.

You must perform the Insulation Resistance Test, the Heating Cable Resistance Test, and the Sensor Resistance Test four times (Please refer to 4 installation) during the installation process

5.1 Insulation resistance test

This test ensures that the insulating jackets of the cable are not damaged. A low value indicates the cable has been damaged and must be replaced.

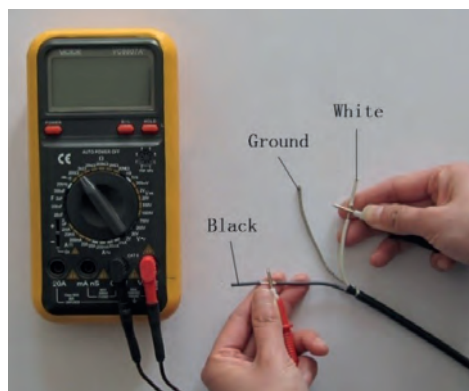
- Connect the ground wire to the black lead and both power wires to the red lead of the multimeter.
- Make sure the meter reads "Open" or "OL." If you get a different reading, contact Hornisse via website: www.hornisse.eu.
- Record these readings on the warranty card.



5.2 Heating cable resistance test

This test measures the resistance of the MiniCable and is used to determine circuit integrity.

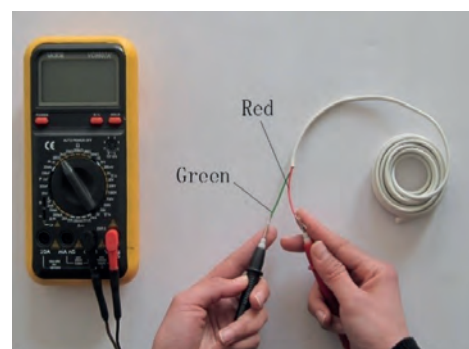
- Set your multimeter to the 200 or 2000 ohm range.
- Connect the multimeter leads to the brown and blue cold lead wires.
- Compare this resistance reading to the resistance specified in the Product Selection "Table 1 or Table 2". The value should be within -5%~+10%. If you get a different reading, contact Hornisse via websie www.hornisse.eu
- Record these readings on the warranty card.



5.3 Sensor resistance test

This test measures the resistance of the floor sensor and is used to verify the sensor integrity.

- Set your multimeter to the 200K ohm range.
- Connect the mutimeter leads to the red and green lead wires.
- Make sure the meter reads between 9-25K ohms. If you get a different reading, contact Hornisse via websie www.hornisse.eu
- Record these readings on the warranty card.



6 Troubleshooting

Symptom	Probable Causes	Corrective Action
Floor doesn't heat	No voltage.	Check circuit breaker.
	Circuit breaker tripped.	Ensure that there are not too many cables or other appliances connected on the same circuit. The Hornisse Cable may require a dedicated circuit. See the Product Selection "Table 1 or Table 2" of this manual
	Ground-fault tripped in the thermostat.	Refer to Hornisse Thermostat Installation and Operation Manual.
	Thermostat not turned on.	Refer to Section 4 of this manual, and the Hornisse Thermostat Installation and Operation Manual.
	Cable not connected to Hornisse thermostat	Refer to Hornisse Thermostat Installation and Operation Manual.
	Floor temperature sensor not connected.	Refer to Hornisse Thermostat Installation and Operation Manual.
	Faulty sensor.	Contact Hornisse via websie www.hornisse.eu
Floor warm all the time	Clock not set correctly.	Refer to Hornisse Thermostat Installation and Operation Manual.
Floor not warm enough	Nieprawidłowe ustawienie termostatu Hornisse.	Refer to Hornisse Thermostat Installation and Operation Manual.
Installation instructions not available		Download the latest version of Hownisse system Installation Instructions from www.hornisse.eu

Extended warranty

For a lifetime warranty from the date of purchase, Hornisse warrants the heating cable of the Hornisse Indoor Electric Heating Cable System to be free from defects in materials, construction and workmanship. The extended warranty is only valid if the warranty card has been correctly completed and sent by post, and the installation is in accordance with the installation instructions.

Defective Hornisse Indoor Electric Heating Cable System heating cable must be inspected or delivered to Hornisse or an authorized Hornisse Indoor Electric Heating Cable System dealer. Failure to do so will void this extended warranty. If the customer documents that a defect in the Hornisse Internal Electric Heating Cable System existed on the date of delivery, Hornisse will repair or supply a new Hornisse Internal Electric Heating Cable System at its option. All claims must be made within the extended warranty period. Hornisse is not responsible for reports made after ten years from the date of purchase.

Hornisse shall not be liable for any consequential or consequential costs or damages relating to the defect or replacement of the Hornisse Electric Heating Internal Cable System. Hornisse will be responsible for all costs associated with dismantling the defective product and installing the new product; however, such liability is limited to an amount of five (5) times the initial cost of the product for each damage/accident.

This warranty is expressly in lieu of all other warranties, express or implied, on the part of HORNISSE. HORNISSE excludes all warranties, express or implied, of merchantability or fitness for a particular purpose. HORNISSE does not assume or authorize any other person, firm or corporation to assume for it any other liability in connection with the sale or product. HORNISSE shall not be liable for personal injury or property damage, consequential loss, loss of profit, loss of goods in stock, or the like, which may result from the failure of the equipment supplied, regardless of cause (including defective manufacture).

How to claim this warranty

Please contact the company's customer service department and provide the following information:

- 1) Nature of the manufacturing defect
- 2) Date of purchase and, if already installed, date of installation
- 3) If installed, name of electrician and flooring installer
- 4) Resistance readings taken by installer
- 5) Proof of purchase and serial number from product label

Our Customer Service department will provide you with an authorization number and advise you on the next steps to complete your warranty claim.

Our Customer Service Department will provide you with the authorization number and inform you of the next steps to make a warranty claim.

Disclaimer:

This warranty gives you certain rights, which may vary from country to country or province to province. Hornisse hereby stipulates, and it is a condition of sale, that there are no implied warranties. Some countries and provinces do not allow limitations on implied warranties, so the above limitation may not apply to you.

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