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Quality & Comfort from the Ground Up



Nexans Electric Floor Heating Mat Installation Instructions

Installing The Heating Mats

IMPORTANT NOTE: THESE MATS ARE NOT TO BE INSTALLED IN WALLS OR CEILINGS FOR ANY REASON AND MUST BE WIRED BY A QUALIFIED, LICENSED ELECTRICIAN.

NEVER:

- Cross the blue heating cable over itself.
- Cut the blue heating cable for any reason.
- Run heating cable directly to the junction box.
- Subject the blue heating cable to harmful surfaces.

ALWAYS:

- Follow local and national electrical codes.
- Test the mat for the proper readings before, during and after the installation.
- Make certain the splice is completely buried in the pour.
- Fill out the warranty card and return it to Orbit.

*******DO NOT CUT THE HEATING CABLE*******

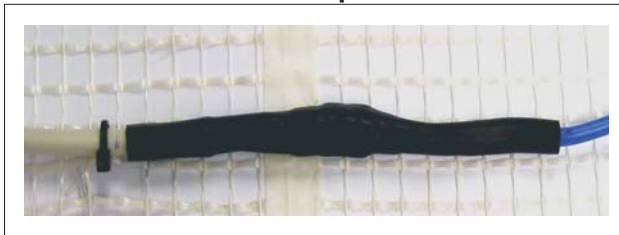
GENERAL INSTALLATION GUIDELINES

Electrical Code and Safety: All heating mat installations shall be installed according to the National Electric Code (NEC) Article 424 for space heating. **(In addition, the installation shall be in accordance with the regulations of all authorities having jurisdiction.)** **Caution:** This equipment shall only be installed by qualified personnel, who are familiar with the construction, operation, and installation.

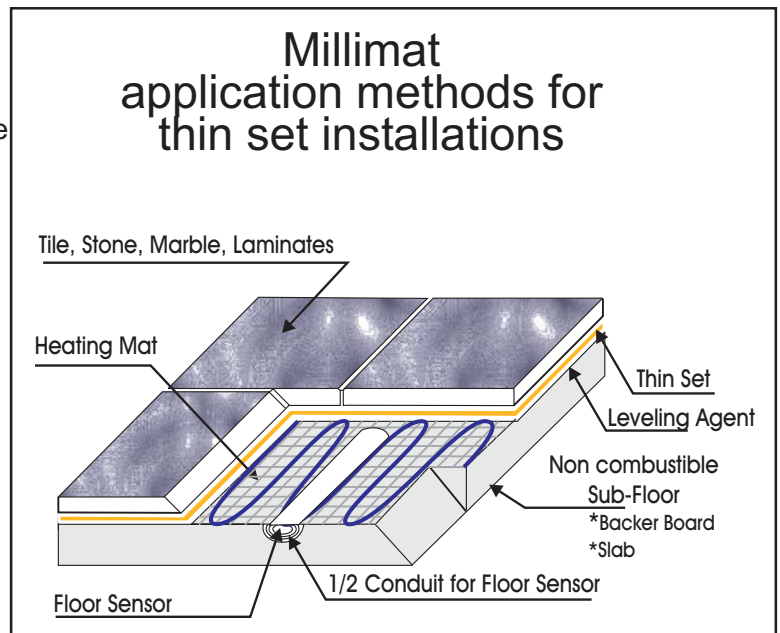
Product Description: The Nexans Millimat is constructed of a blue twin conductor cable attached to a white poly mesh mat. The cable is spaced at a fixed 3.15" On Center Spacing with tape and comes with 8 feet of cold lead on one end. The Millimats are designed to provide 12 watts per square foot. **IT IS VERY IMPORTANT TO NEVER CUT THE HEATING CABLE** as this will damage the mat and void the warranty. Details of mat dimensions, load, voltage, etc. are given on the UL Tag. **(Minimum distance between adjacent runs of cable and minimum bending radius are 2 inches).**

Plan the installation by identifying the area you would like to heat minus the permanent fixtures. The distance between the mat and non-heated areas shall be no closer than 1 inch. Select the correct Millimat(s) with respect to the heated area and the 1 inch margin as specified. The heating cable cannot cross or touch itself and cannot be placed in or under a wall, therefore the area of the Millimat(s) must be slightly smaller than the heated area. When cutting and adjusting the mesh, ensure that the cables are kept at the same distance from each other as the cables on the mat itself. The heating cable shall not touch or overlap itself. The splice **MUST** be buried in the masonry. This is the point at which the heating cable is attached to the cold lead. Only the cold lead can be out of the Masonry or concrete and run into the conduit.

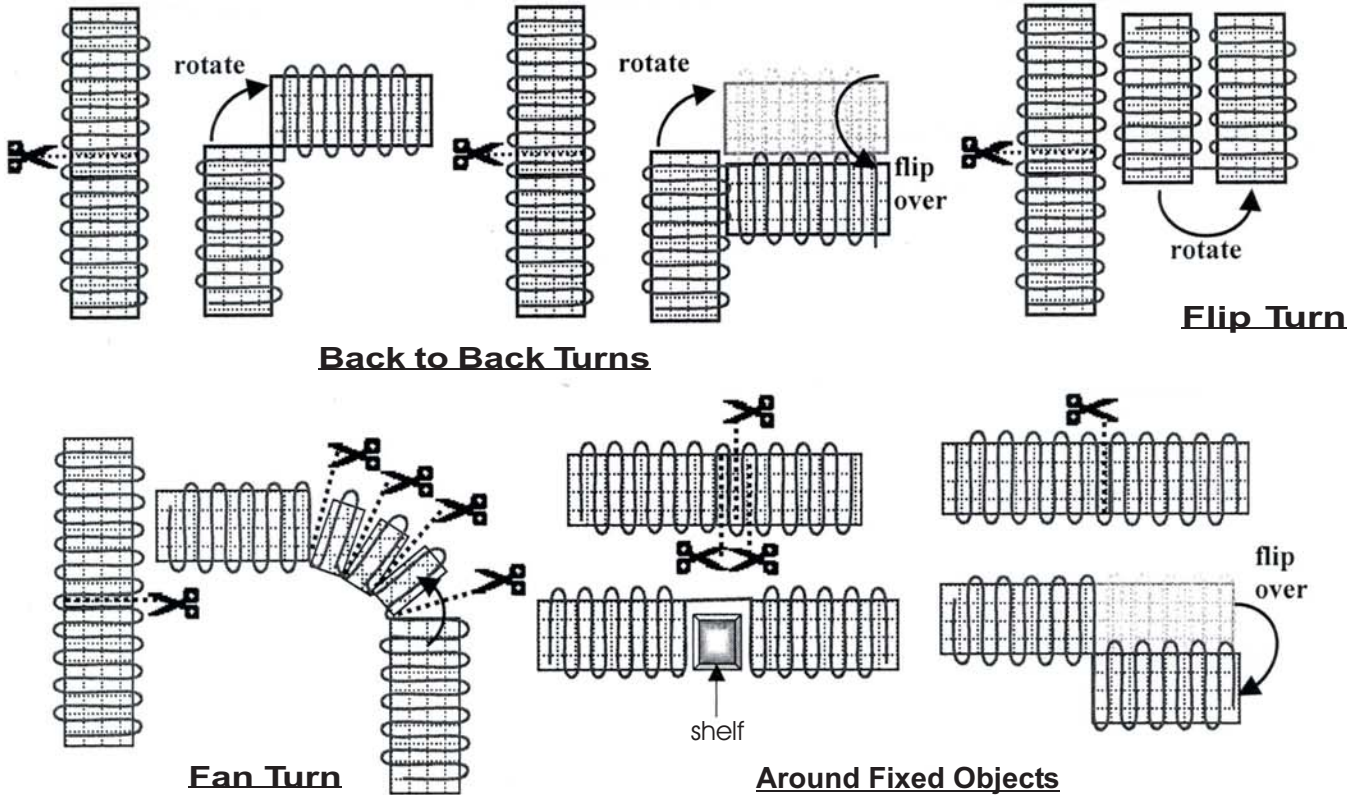
Millimat Splice



Millimat application methods for thin set installations



TYPICAL CONFIGURATIONS



ONLY CUT THE MESH THAT THE CABLE IS ATTACHED TO. DO NOT CUT THE HEATING CABLE!

STEP BY STEP INSTALLATION INSTRUCTIONS

1. Measure the area to be heated and verify that the mat you received is correct. Compare your net square footage to the Mat information located within table 1 on page 3. Perform testing procedure located on page 3 before beginning the installation. Caution: Handle the product with care and do not press or drop any sharp objects into the Millimat.
2. If the subfloor is made of combustible material, a non-combustible layer must be laid prior to installing the heating mat. The non-combustible lay must be leveled and stable.
3. Determine the thermostat location and install your double gang box as required by code. Electrical conduit sized by code are recommended for mat cold leads and thermostat floor sensor.
4. Start on the floor close to where the thermostat is going to be. When making adjustments for placement, do not cut the cable, only the mesh. When cutting and adjusting mat, ensure that the cables are kept at the same distance from each other as the cables on the mat itself. The heating cable shall not touch, cross, or overlap itself. Make sure that the splice (the connection between cold and hot part of the cable) is placed in the floor and embedded. Note: The splice is much wider and thicker than the cable and is easily identified. It may have to be recessed into the sub-floor to provide a level surface for the tile installer.
5. If a floor sensor is used, it must be connected at equal distance between two cable runs. It is recommended to install the floor sensor inside a conduit.
6. Starting on the sub-floor beneath the junction box, arrange the mat in the area to be heated per the above configurations. Cut only the white mesh, and not the heating cable. When arranging the mat, make sure the heating wire straddles the floor sensing conduit evenly. When mat is in place, it is recommended to repeat the testing procedure.
7. Take a photo to document the mat layout and pour your mortar. Keep the photo as record of the cable locations with the product warranty card.

TESTING PROCEDURE (These Procedures Must Be Performed By A Licensed Electrician)

1. Verify that the mat number you ordered is the one you received.
2. Find your model number below in Table 1 on Pg 3 and record the Ohms for later use. (Also located on the UL tag)
3. Visually inspect the heating mat before installation to locate any flaws or breaks.
4. With a digital OHM meter, first check resistance between the center conductor and the ground wire (twisted copper). The reading should be OL or infinity.
5. Again using a digital OHM meter in order to verify proper Ohm resistance. Place the leads, one on each end of the mats center conductor. The reading should be 10% (plus or minus) of the value in step 2.
6. With a megger, perform a leak test on the mat. (If a megger is not available, step 5 will have to suffice) Place the positive (red) lead on the center conductor. And the negative (black) lead on the ground wire (Twisted copper). The reading should be OL or infinity.
7. It is a good idea to keep the meter attached to the center conductors during the pouring of the floor to note any sudden change in the recorded value. If this occurs, **STOP** the installation and determine the cause.
8. We strongly recommend that a photo be taken of the floor after the heating mat is installed and before the final floor covering is laid. This will serve as a record of location and direction or the cable runs. This can be used as a reference for any future work that is to be done to the area to avoid damaging the buried mat.
9. After the mat is installed, repeat steps 4 & 5.

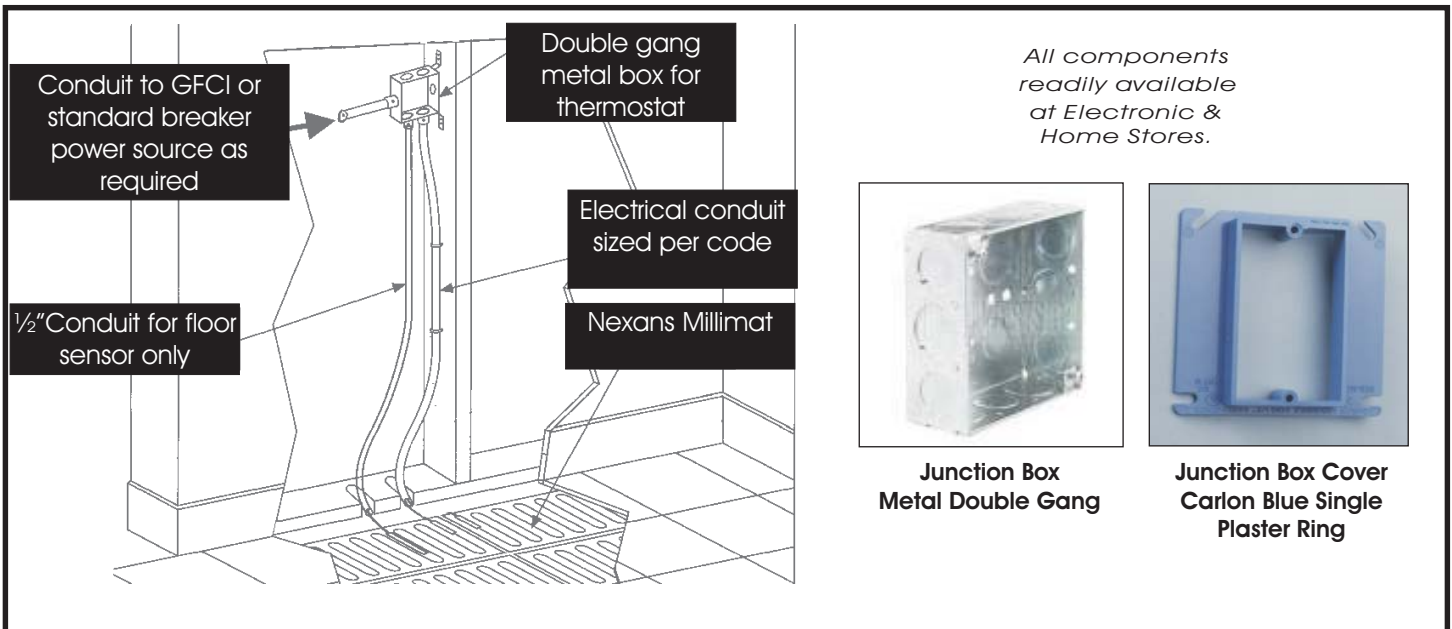
230 VOLT MILLIMAT SPECIFICATIONS

Table 1

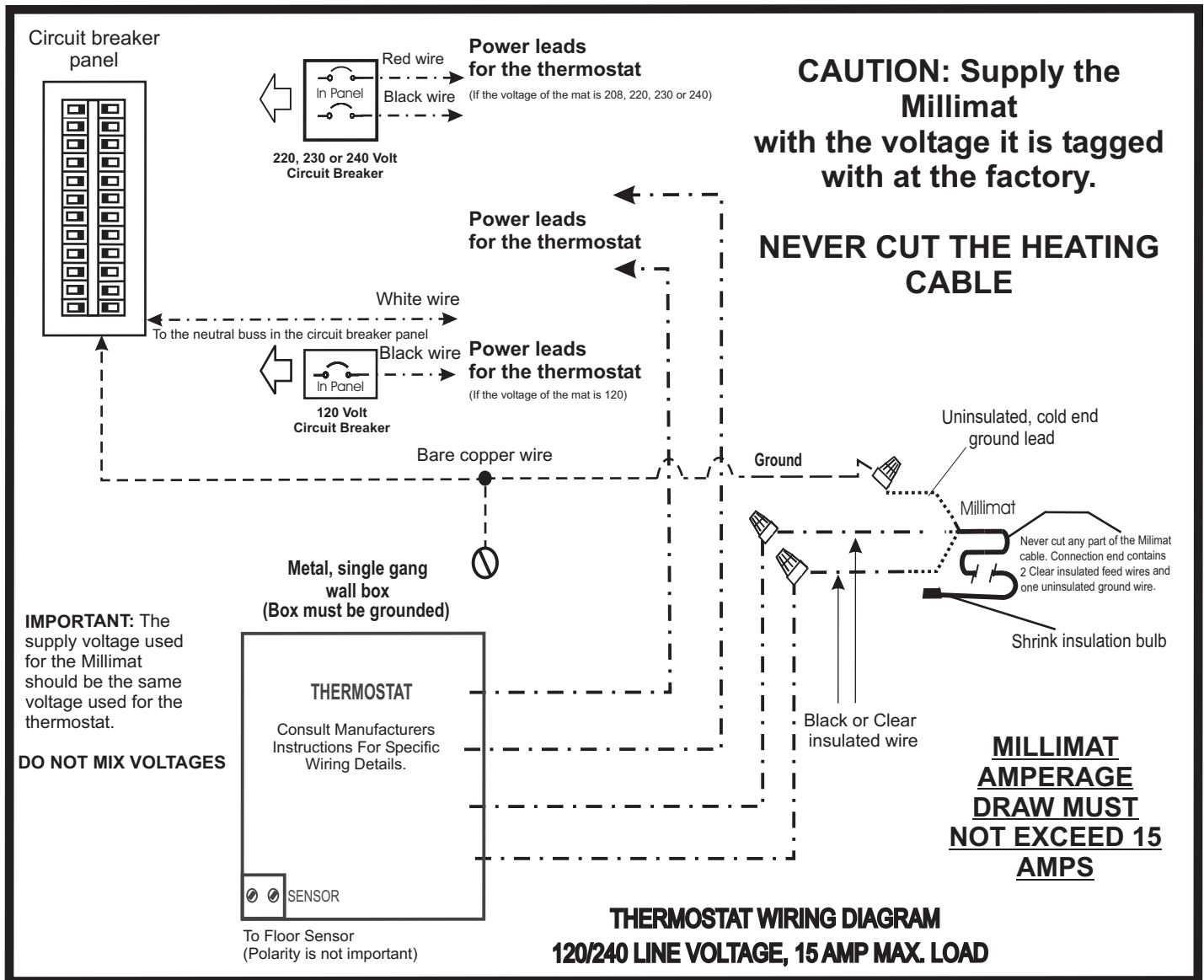
120 VOLT MILLIMAT SPECIFICATIONS

Model Number	Length	Width	Watts	Ohms	Amps	Sq Ft	Model Number	Length	Width	Watts	Ohms	Amps	Sq Ft
Millimat/230V-120/10	6.1'	19.7"	120	480	0.5	10	Millimat/120V-85/7	4.3'	19.7"	85	169.4	0.71	7
Millimat/230V-300/25	15.2'	19.7"	300	192	1.25	25	Millimat/120V-120/10	6.1'	19.7"	120	120	1	10
Millimat/230V-360/30	18.3'	19.7"	360	160	1.5	30	Millimat/120V-180/15	9.1'	19.7"	180	80	1.5	15
Millimat/230V-420/35	21.3'	19.7"	420	137.1	1.75	35	Millimat/120V-240/20	12.2'	19.7"	240	60	2	20
Millimat/230V-480/40	24.4'	19.7"	480	120	2	40	Millimat/120V-300/25	15.2'	19.7"	300	48	2.5	25
Millimat/230V-600/50	30.5'	19.7"	600	96	2.5	50	Millimat/120V-360/30	18.3'	19.7"	360	40	3	30
Millimat/230V-720/60	36.6'	19.7"	720	80	3	60	Millimat/120V-420/35	21.3'	19.7"	420	34.3	3.5	35
Millimat/230V-840/70	42.7'	19.7"	840	68.6	3.5	70	Millimat/120V-480/40	24.4'	19.7"	480	30	4	40
Millimat/230V-960/80	48.8'	19.7"	960	60	4	80	Millimat/120V-600/50	30.5'	19.7"	600	24	5	50
Millimat/230V-1200/100	61'	19.7"	1200	48	5	100	Millimat/120V-720/60	36.6'	19.7"	720	20	6	60
Millimat/230V-1440/120	73.2'	19.7"	1440	40	6	120							
Millimat/230V-1740/145	88.4'	19.7"	1740	33.1	7.25	145							

Electrical Installation Diagram



Suggested Wiring To Be Performed By A Licensed Electrician In Accordance With All Applicable Local, State, & Federal Requirements.



Thermostat and Controls: Always install the thermostat per local code. When using the floor sensing thermostat, it is important to make sure that the floor sensor is placed 1-3' out into the heated floor and centered between two cable runs (See Diagram on Page 3). Where multiple mats are used, and the amp load is greater than 15, an RFWCK Control Box is available.

LIMITED WARRANTY

The warranty time on the mat products shall be 20 (Twenty) years from the time of delivery to the end user. Orbit guarantees that the mats are free from defects in the material and workmanship. This guarantee is from Orbit and is limited to the delivery of new products to the customer. Orbit or it's distributors are under no circumstances liable for consequential damages or losses including without limitation, the loss of profits arising from any cause whatsoever. This guarantee is a material warranty only and does not cover field labor.

Please fill out the enclosed warranty card or register the warranty through our web site @ www.OrbitMfg.com. On the line marked "conductor resistance" insert the resistance found in step 5 located in the Testing Procedure found on page 3. If not registering electronically, please send the completed form to, Orbit Radiant Heating, Attn: Warranty Department, 1507 B West Park Ave, Perkasie, PA 18944.

WARRANTY REGISTRATION MUST BE COMPLETED AND SUBMITTED TO THE MANUFACTURER OR
THE WARRANTY WILL BE NULL AND VOID.