Schluter®-DITRA-HEAT

INNOVATIVE SOLUTIONS FOR CERAMIC AND STONE TILE

ELECTRIC FLOOR WARMING SYSTEM WITH INTEGRATED UNCOUPLING TECHNOLOGY

Application and Function

6.4 Schluter®-DITRA-HEAT and DITRA-HEAT-DUO integrate customizable, comfortable electric floor warming with the functions of DITRA: uncoupling, waterproofing, vapor management and support to ensure a long lasting installation. DITRA-HEAT-DUO features an integrated thermal break to reduce impact sound transmission through floor-ceiling assemblies, reduce heat loss to the substrate, and improve floor warming response time.

DITRA-HEAT-PS and **DITRA-HEAT-DUO-PS** are peel and stick membranes that feature a pressure-sensitive adhesive (PSA) to bond the membrane to the substrate, replacing the need for thin-set mortar. The -PS versions offer the same core functions of DITRA-HEAT and DITRA-HEAT-DUO.

Floor Warming

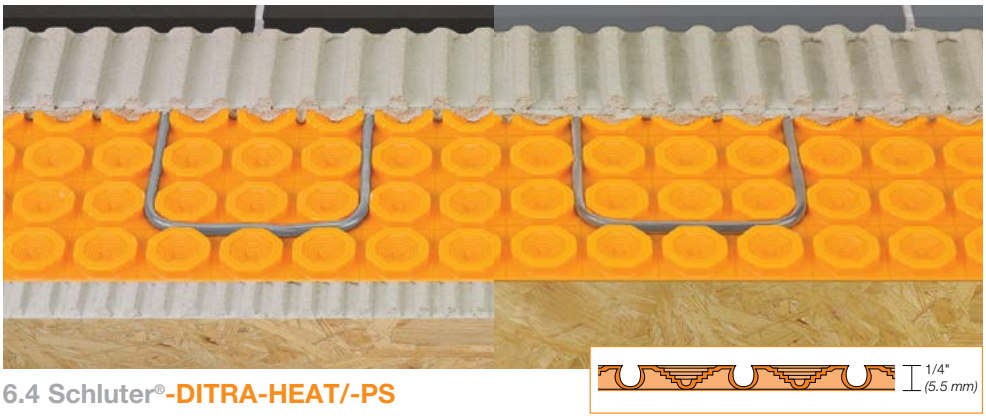
DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS combine the flexibility of loose heating cables with the ease of installation of mat systems. Cables can be placed wherever heat is desired, without creating height differences in the floor. Self-leveling compounds are not required to encapsulate the cables, significantly reducing installation time and effort.

Sound Control

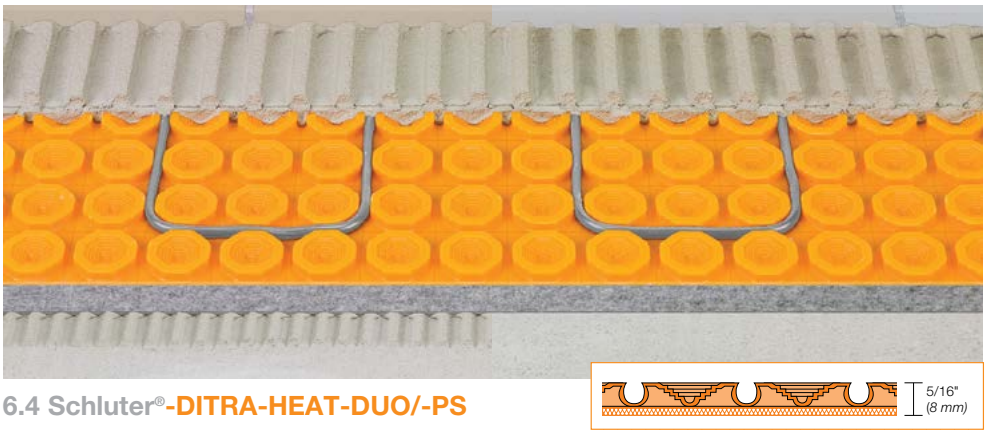
Controlling impact sound transmission through floor-ceiling assemblies in multi-story construction can present challenges, particularly when ceramic and stone tiles are used. Sound control materials tend to be compressible and not all provide adequate support for tile covering in thin-set applications. DITRA-HEAT-DUO/-PS reduces sound transmission, while supporting the covering to ensure a lasting installation.

Uncoupling

Tile has been successfully installed for thousands of years by incorporating an uncoupling layer, or forgiving shear interface, within the tile assembly. DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS provide uncoupling through their geometric configuration, which allows for in-plane movement that effectively neutralizes the differential movement stresses between the substrate and the tile, thus eliminating the major cause of cracking and delaminating of the tiled surface.



6.4 Schluter®-DITRA-HEAT/-PS



6.4 Schluter®-DITRA-HEAT-DUO/-PS

Waterproofing

DITRA-HEAT and DITRA-HEAT-DUO provide reliable waterproofing. Their polypropylene composition protects the substrate from moisture penetration, which is particularly important in today's building environment where most substrates are moisture-sensitive.

For applications requiring compliance with or certification to the ANSI A118.10 American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation, select the DITRA-HEAT or DITRA-HEAT-DUO membranes that are installed with thin-set mortar. Alternatively, the DITRA-HEAT-PS or DITRA-HEAT-DUO-PS membranes may be covered with the Schluter®-KERDI membrane, which is certified to meet ANSI A118.10.

Vapor Management

The free space on the underside of DITRA-HEAT and DITRA-HEAT-DUO provide a route for excess moisture and vapor to escape from the substrate that could otherwise cause damage to the tile covering above. Thus, DITRA-HEAT and DITRA-HEAT-DUO effectively manage moisture beneath the tile covering, which is certified to meet ANSI A118.10.

Support/load distribution

When placed on a solid foundation, columns or pillars can support tremendous loads. The

same physical principle applies to DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS installations. Column-like mortar structures are formed in and between the studs on the surface of the matting. Loads are transferred from the tile covering through these column-like mortar structures to the substrate. Since DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS are virtually incompressible within the tile assembly, the advantages of uncoupling are achieved without sacrificing point load distribution capabilities.

Material Properties and Areas of Application

DITRA-HEAT is a polypropylene membrane with a cut-back stud structure and an anchoring fleece laminated to the underside. The thickness of the mat, including the stud structure is 1/4" *(5.5 mm)*. DITRA-HEAT-DUO is a polypropylene membrane with a cut-back stud structure and a thermal break anchoring fleece laminated to the underside. The thickness of the mat, including the stud structure and thermal break fleece is 5/16" *(8 mm)*. Polypropylene is not UV-stable in the long term; the product must not be stored in places with prolonged exposure to direct sunlight.

DITRA-HEAT-PS and DITRA-HEAT-DUO-PS feature a UV sensitive pressure-sensitive adhesive that should be not be stored in places with prolonged exposure to direct sunlight. The PSA is also temperature sensitive and should be stored in a frost-free environment 41 - 86 °F *(5 - 30 °C)*. If product is exposed to conditions outside of recommended temperature range, product shall be re-acclimated to range for a minimum of 24 hours. The PSA is not water soluble and is free of solvents.

The DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS mattings do not rot and are inert, non-toxic, and physiologically safe. The material is highly resistant to solutions containing salts, acids, and alkalis, as well as many organic solvents, alcohols, and oils. Resistance to specific stresses can be provided if concentration, temperature, and exposure time are known. DITRA-HEAT and DITRA-HEAT-DUO are waterproof and minimize the transmission of vapor.

Although peel and stick versions of DITRA-HEAT do not comply with requirements of ANSI A118.10, they may be used in bathrooms or wet areas not requiring this specification if seams are properly treated with KERDI-BAND and KERDI accessories. If meeting ANSI A118.10 specifications is required and peel and stick membranes are to be used, the entire area must be covered with KERDI membrane in conjunction with appropriate KERDI components.

DITRA-HEAT-DUO/-PS offers the same functions as the DITRA-HEAT membrane, but also features an integrated thermal break in the form of a thicker bonding fleece. The thermal break reduces impact sound transmission through floor-ceiling assemblies, reduces heat loss to the substrate, and improves the floor warming response time at the standard three stud cable spacing.

When tested according to ASTM E2179, an assembly of DITRA-HEAT-DUO and 12" x 12" porcelain tile installed and grouted with cement-based setting materials produced an increase in impact insulation class (ΔIIC) of 20 to a concrete slab floor-ceiling assembly (Test Report NGC 7016078). The same basic assembly tested according to ASTM C627 reached a classification of "Light" in accordance with the "TCNA Handbook for Ceramic, Glass, and Stone Tile Installation," defined as suitable for "light commercial use in office space, reception areas, kitchens, and bathrooms" (Test Report TCNA-455-15 Test #1).

In laboratory testing, DITRA-HEAT-DUO reduced floor warming response time from 68°F *(20°C)* to 78°F *(25.5°C)* by approximately 80% (90 minutes) compared to DITRA-HEAT over a concrete substrate. Wood substrates act as insulators and typically do not pose the same challenges as concrete substrates. In the same laboratory testing, DITRA-HEAT-DUO only reduced floor warming response time from 68°F *(20°C)* to 78°F *(25.5°C)* by approximately 20% (5 minutes) compared to DITRA-HEAT over a plywood substrate. Schluter®-DITRA-HEAT-E-HK heating cables were spaced at three studs in all of the above tests. Results above are based upon laboratory testing. Actual results may vary depending on various factors, including concrete substrate thickness, concrete substrate temperature, room temperature, heat losses, etc.

DITRA-HEAT and DITRA-HEAT-DUO have been evaluated according to the "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1" for California Specification 01350 and found to comply with the VOC requirements. California Specification 01350 is referenced by various green building standards and rating systems.

DITRA-HEAT-E-HK are twisted pair heating cables designed for integration with the DITRA-HEAT and DITRA-HEAT-DUO uncoupling membranes in interior floor warming applications. The cables can be installed without returning to the thermostat and produce virtually zero electromagnetic fields.

DITRA-HEAT-E-RS1/-WiFi/-RT/-R are digital thermostats to control the DITRA-HEAT-E-HK heating cables (either 120 V or 240 V). The thermostats feature a built-in Class A ground fault circuit interrupter (GFCI) with indicator light. The DITRA-HEAT-E-RS1 is a smart thermostat designed to be mainly operated via the Schluter Smart Thermostat app. It features a sleek design with a mirror-finish and third-party integration with popular voice and home assistants to easily include floor warming into your smart home capabilities. The DITRA-HEAT-E-RRS power module may be used in conjunction with the thermostat when the heating load exceeds 15 amps (e.g., in large floor applications) to maintain a single point of control. This power module can only be used with the DITRA-HEAT-E-RS1 thermostat. The DITRA-HEAT-E-WiFi programmable WiFi thermostat features LCD touchscreen controls and comes with a pre-set schedule, but may be adjusted to fit any schedule. When connected to WiFi, the thermostat provides convenient monitoring and adjustment of the floor warming system via the web or mobile app. The DITRA-HEAT-E-RT programmable thermostat features LCD touchscreen controls and comes with a pre-set schedule, but may be adjusted to fit any schedule. The DITRA-HEAT-E-R non-programmable version features a simple on/off function. Multiple heating cables may be connected to the thermostats, up to the total heating load limit of 15 amps. The DITRA-HEAT-E-RR power module may be used in conjunction with the DITRA-HEAT-E-RT/-R thermostats when the heating load exceeds 15 amps (e.g., in large floor applications). A floor temperature sensor is included.

Two floor temperature sensors are provided with each DITRA-HEAT-E-HK heating cable box. Both floor temperature sensors are installed within the tile assembly. One sensor is connected to the thermostat, while the other sensor is stored in the thermostat electrical box, but not connected to the thermostat. The second sensor can easily be connected to the thermostat to replace the first sensor in case of damage.

Suitable Substrates

Wood

All wood materials, including OSB, plywood, and framing members, are subject to expansion, contraction, bending, and deflection as a result of changes in moisture content and loading. Further, these deformations fluctuate over the life of the building structure.

Concrete

There are various challenges associated with the installation of hard surface coverings on concrete substrates. To begin, the coefficient of thermal expansion of concrete is close to twice that of ceramic tile. Additionally, tile contractors are often expected to install tile over young concrete (concrete cured less than 28 days). However, rigid surface coverings installed over young concrete are susceptible to damage as a result of shrinkage during curing. Pre-stressed/post-tensioned concrete slabs are also commonplace in today's construction environment. Although pre-stressing is used to help control deflections in concrete structures, these slabs are still subject to deformations caused by changes in moisture, temperature, and loading. Many concrete slabs on or below grade are subject to moisture migration, which can be problematic. Furthermore, these structures experience the same deformations as stated above.

Gypsum

Bonding ceramic or stone tiles directly to gypsum concrete substrates is generally considered questionable or not recommended. The challenges associated with gypsum-based underlayments include the requirement of an extended drying period before installing tile and continued sensitivity to the reintroduction of moisture throughout the life of the installation. In addition, since the coefficient of thermal expansion of gypsum concrete is

substantially greater than that of ceramic tile, shear stresses caused by temperature fluctuations can result in delamination or cracking of the tile covering.

Note: DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS may be installed over existing vinyl floors (no cushioned or perimeter bonded vinyl). However, various steps must be taken to ensure a successful installation. Please refer to the Schluter®-DITRA-HEAT Installation Handbook for details.

Installation

For complete installation guidelines and warranty criteria, please contact Schluter-Systems (USA: 800-472-4588; Canada: 800-667-8746) to receive a copy of the Schluter®-DITRA-HEAT Installation Handbook. To download a PDF version of the handbook or to view the installation video online, please visit www.schluter.com.

All substrates must be clean, even, and load bearing. Bond inhibiting surfaces must be removed prior to the application of DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS.

When installing DITRA-HEAT-PS / DITRA-HEAT-DUO-PS over young concrete, there are limitations. The maximum allowable moisture vapor emission rate (MVER) of the slab is 8 lbs. per 1,000 sq. ft. (3.62 kg per 92.9 m^2) per 24 hours using an ASTM 1869 calcium chloride test kit. Do not install when the relative humidity of concrete slabs exceeds 85% (ASTM F2170).

For optimal performance of peel and stick membranes with difficult-to-bond-to substrates, use Schluter®-PRIMER-U or other primer suitable for the application.

Note: Type, thickness, and format of the tile or stone surface covering must be suitable for the intended application. Minimum tile format is 2" x 2" *(5 cm x 5 cm)*.

Due to airspace within the assembly, tile or stone coverings installed over DITRA-HEAT-DUO/-PS membranes may have a hollow sound when they are walked upon with hard shoes or tapped with a hard object.

Movement Joints

DITRA-HEAT/-PS or DITRA-HEAT-DUO/-PS do not eliminate the need for movement joints, including perimeter joints, within the tiled surface. Please refer to the Schluter®-DITRA-HEAT Installation Handbook for movement joint placement guidelines.

Wood Underlayment

In some applications, adding a layer of plywood or OSB before installing DITRA-HEAT/-PS or DITRA-HEAT-DUO/-PS and the ceramic or stone tile covering is required to reduce deflection and curvature of the sheathing between the joists. Please refer to the Schluter®-DITRA-HEAT Installation Handbook for plywood/OSB underlayment installation guidelines.

Maintenance

Storage: Store the DITRA-HEAT-PS and DITRA-HEAT-DUO-PS membrane in a frost-free environment (41°F - 85°F/5°C - 30°C). The membranes are not UV stable and must be stored out of direct sunlight. If exposed to extreme conditions, acclimatize to ambient temperature 24 hours prior to installation.

Thin-Set Facts

Schluter®-Systems offers thin-set mortars designed for use with Schluter® membranes and boards. All Schluter-Systems' thin-set mortars, including the Schluter ALL-SET® and Schluter FAST-SET® modified varieties, can be used to set tile over Schluter®-DITRA, DITRA-HEAT, KERDI, KERDI-BOARD non absorptive substrates. If Schluter® thin-set mortars are not used, we require unmodified thin-set mortar when setting ceramic or porcelain tile over DITRA-HEAT.

Question: Can ceramic tile, including porcelain tile, be set on DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS with unmodified thin-set mortar?

Answer: YES. In fact, we recommend it.

Here's why: Portland cement-based unmodified thin-set mortars are dependent upon the presence of moisture for hydration in order to gain strength. Since DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS are impervious, they do not deprive the mortar of its moisture. This allows the cement to properly hydrate, resulting in a strong, dense bond coat. In fact, after the mortar has reached final set (usually within 24 hours), unmodified thin-set mortars achieve higher strengths when cured in continually moist conditions.

Question: Can ceramic tile, including porcelain tile, be set on DITRA-HEAT/-PS and DITRA-HEAT-DUO/-PS with latex-modified thin-set mortar?

Answer: No.

Here's why: Latex-modified mortars must dry for the polymers to coalesce and form a hard film in order to gain strength. When sandwiched between two impervious materials such as DITRA-HEAT/-PS or DITRA-HEAT-DUO/-PS and ceramic tile, including porcelain tile, drying takes place very slowly through the open joints in the tile covering. [According to the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation, this drying period can fluctuate from 14 days to over 60 days, depending on the geographic location, the climatic conditions, etc.]. Therefore, extended cure times could be required before grouting if using modified thin-set mortars between DITRA-HEAT/-PS or DITRA-HEAT-DUO/-PS and ceramic tile, including porcelain tile. If extended cure times were not observed, the results could be unpredictable.

Question: Can Schluter ALL-SET® and Schluter FAST-SET® modified thin-set mortars be used to set tile over Schluter boards and membranes?

Answer: Yes. All Schluter thin-set mortars, including the ALL-SET and FAST-SET modified varieties can be used to set tile over DITRA, DITRA-HEAT, KERDI, KERDI-BOARD non absorptive substrates.

Question: How is this possible?

Answer: The key is predictability. Schluter-Systems' modified thin-set mortars have been specifically formulated to set and gain strength in a timeframe that fits typical installation practice, even when sandwiched between Schluter membranes or boards and porcelain tile. The proportions of cement, water-retention agents, polymers, and other components in the mixtures were balanced to ensure that extended dry times are not required. This was validated through both laboratory and practical testing. Now, the installer can select from either unmodified or modified thin-set mortar to install tiles within our systems according to his or her preference.

Question: Why did Schluter-Systems change its position on thin-set mortar?

Answer: We haven't changed our position on thin-set mortar use within our systems. Developing our own setting materials has given us the ability to guarantee consistently positive results. And since we control the formulas, we can be sure no changes will be made that have a negative impact on setting times and strength gain in these environments.

Question: Does this mean I can use other manufacturers' modified thin-set mortars to install tile over Schluter boards and membranes?

Answer: No. Our position on thin-set mortar use within our systems in general has not changed. We have no control over the formulation of other manufacturers' products and therefore cannot guarantee consistently positive results with their modified thin-set mortars.

Question: Can I still use other manufacturers' unmodified thin-set mortars to install tile over Schluter boards and membranes?

Answer: Yes. We still warrant the use of unmodified thin-set mortar meeting ANSI A118.1 to install tile within our systems because we have confidence in the performance of this product category. This is based on the science of cement hydration and years of positive testing and field experience.

Please note, if Schluter thin-set mortars are used with Schluter membranes an extended system warranty is available.

Additional Notes:

Remember, the type of mortar used to apply DITRA-HEAT or DITRA-HEAT-DUO depends on the type of substrate. The mortar must bond to the substrate and mechanically anchor the fleece on the underside of the matting. For example, bonding DITRA-HEAT or DITRA-HEAT-DUO to wood requires latex-modified thin-set mortar. Additionally, all mortars (modified and unmodified) have an acceptable temperature range that must be observed during application and curing.

Pre-mixed thin-set mortars and mastics are not suitable for use in conjunction with DITRA-HEAT and DITRA-HEAT-DUO.

Testing and Certifications

Uncoupling Membrane
The method used to establish the overall performance of a tile assembly under loading is the ASTM C627 “Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson Type Floor Tester.” The assembly is tested in cycles using a loaded, revolving carriage. Load, wheel hardness, and number of revolutions vary with each cycle. Once a specified level of damage is exceeded, the test is stopped. The TCNA Handbook for Ceramic, Glass, and Stone Tile Installation assigns performance levels to an assembly based on the number of cycles successfully completed. The ratings include residential, light, moderate, heavy, and extra heavy, in order of improving performance.

Report Number	Substrate	Joist Spacing	Tile	Rating
Schluter®-DITRA-HEAT				
TCNA-415-13	OSB	19.2" o.c.	12" x 12" porcelain	Extra Heavy
TCNA-415-13	OSB	24" o.c.	12" x 12" carrara marble	Light
TTMAC-UFT09-2013	Concrete	N/A	12" x 12" porcelain	Moderate
TCNA-415-13	Concrete	N/A	2" x 2" porcelain	Light
Schluter®-DITRA-HEAT-DUO				
TCNA-455-15 (1)	Concrete	N/A	12" x 12" porcelain	Light
TCNA-455-15 (2)	Concrete	N/A	2" x 2" porcelain	Residential
TNCA-455-15 (3)	Concrete	N/A	12" x 12" marble	Light
TCNA-455-15 (4)	Plywood	19.2" o.c.	12" x 12" porcelain	Light

Assembly Notes:
1. All plywood and OSB subfloors were 23/32" (3/4" nom.) -thick; 11/32" (3/8" nom.)-thick OSB underlayment added for carrara marble test
2. Modified thin-set mortar (ANSI A118.11) to bond membrane to plywood and OSB.
3. Unmodified thin-set mortar (ANSI A118.1) to bond membrane to concrete
4. Unmodified thin-set mortar (ANSI A118.1) to bond tile to membrane
5. High Performance Cement Grout (ANSI A118.7)

Report Number	Substrate	Joist Spacing	Tile	Rating
Schluter®-DITRA-HEAT-PS				
UFT001-2022	Concrete	N/A	12" x 12" porcelain	Extra Heavy (14 cycles)
UFT008-2021	OSB	19.2" o.c.	12" x 12" porcelain	Light (7 cycles)
Schluter®-DITRA-HEAT-DUO-PS				
UFT004-2022	Concrete	N/A	12" x 12" porcelain	Light (8 cycles)
UFT009-2021	OSB	19.2" o.c.	12" x 12" porcelain	Light (7 cycles)

Waterproofing
DITRA-HEAT and DITRA-HEAT-DUO matting provide reliable waterproofing in interior applications. The products have been found to meet or exceed the requirements of the American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-set Ceramic Tile and Dimension Stone Installation A118.10.
DITRA-HEAT:
- ICC-ES Report No. ESR-2467
- ICC-ES PMG Report No. PMG-1204

DITRA-HEAT-DUO:
- ICC-ES Report No. ESR-2467
- ICC-ES PMG Report No. PMG-1204

DITRA-HEAT peel and stick membranes do not comply with the requirements specified in ANSI A118.10 – American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-set Ceramic Tile and Dimension Stone Installation. For applications requiring membrane compliance with or certification to the ANSI A118.10 American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation, select the DITRA-HEAT or DITRA-HEAT-DUO membranes that are installed with thin-set mortar. Alternatively, the DITRA-HEAT-PS or DITRA-HEAT-DUO-PS membranes may be covered with the KERDI membrane, which is certified to meet ANSI A118.10.

Sound control
DITRA-HEAT-DUO reduces impact sound transmission through floor-ceiling assemblies and supports the covering to ensure a lasting installation.

Report Number	Test	Substrate	Tile	Results
Schluter®-DITRA-HEAT-DUO				
NGC 7016078	ASTM E2179	Concrete	12" x 12" porcelain	ΔIIC = 20
IN17-007	ASTM E492	Concrete*	12" x 12" porcelain	IIC = 50

*8" -thick slab, no ceiling below

DITRA-HEAT-DUO has been found to meet or exceed the requirements of the American National Specifications of Bonded Sound Reduction Membranes for Thin-Set Ceramic Tile Installation A118.13.

IIC
Impact Insulation Class (IIC) is a rating that characterizes the levels of impact noise transmitted through different floor-ceiling assemblies. It can be used by architects, builders, and specification and code authorities for acoustical design purposes in building constructions. The rating increases as the impact sound attenuation of the floor-ceiling assembly increases.
IIC is determined according to ASTM E492 and ASTM E989. The ASTM E492 test method is a laboratory measurement of impact sound transmission through floor-ceiling assemblies using a standardized tapping machine. The results from this test are then used to calculate a single-number rating per ASTM E989 that is called impact insulation class.

Delta IIC
Delta Impact Insulation Class (ΔIIC) is a rating that characterizes the reduction in impact noise transmitted through a concrete floor by the addition of a floor-covering assembly. It can be used to compare the effectiveness of different floor-coverings over concrete and help select different products and/or systems for acoustical design purposes in building constructions.
ΔIIC is determined according to ASTM E2179. A floor-covering assembly is installed over a standard concrete slab and the IIC of the entire assembly is determined per ASTM E492 and ASTM E989 as explained above. The ΔIIC rating is obtained by subtracting 28 (the IIC of the concrete slab) from the IIC of the entire assembly.

Vapor Management
The free space under the DITRA-HEAT and DITRA-HEAT-DUO mattings allow the substrate to breathe, while the material composition provides for a very low water vapor permeance, which prevents any significant vapor intrusion in the tile assembly from below.

Product	Test Method	Performance
Schluter®-DITRA-HEAT	ASTM E96*	0.21 perms
Schluter®-DITRA-HEAT-DUO		0.48 perms

*Using the water method at 73ºF *(23ºC)* and 50% RH
DITRA-HEAT and DITRA-HEAT-DUO effectively manage vapor and prevent damage to the tile covering as a result.

Heating Cables
The DITRA-HEAT-E-HK heating cables sets are certified or listed to the following standards and usage:
- CAN/CSA-C22.2 No. 130-16 "Requirements for Electrical Resistance Trace Heating and Heating Device Sets" under usage markings GXW for general use (G) with a wet rating (W), but specifically (X) for floor embedded indoor floor warming applications.

For products bearing the cCSAus certification mark:
- UL 1673 "Electric Space Heating Cables" for installation in poured masonry floors within enclosed structures.

For products bearing the cULus certification mark:
- UL 1683 "Outline of investigation for Electric Heating Products For Installation Under Floor Coverings"

Thermostat
The DITRA-HEAT-E-RS1 AND DITRA-HEAT-E-WiFi thermostats WiFi radio chips are authorized by the FCC (USA) and IC (Canada) under the following numbers:
- For the RS1: - FCC ID = 2AC7Z-ESPWROOM32
  - IC ID = 21098-ESPWROOM32
- For the WiFi: - FCC ID = AZY-HF-LPT200
  - IC ID = 12243A-HFLPT2001

The DITRA-HEAT-E-RS1/-WiFi/-RT/-R digital thermostats are UL listed according to the following standards:
- UL 60730-1 “Automatic Electrical Controls for Household and Similar Use – Part 1: General Requirements”
- UL 60730-2-9 “Automatic Electrical Controls for Household and Similar Use – Part 2-9: Particular Requirements for Temperature Sensing Controls”
- CSA E60730-1 "Automatic Electrical Controls for Household and Similar Use – Part 1: General Requirements”
- CSA E60730-2-9 “Automatic Electrical Controls for Household and Similar Use – Part 2-9: Particular Requirements for Temperature Sensing Controls”
- UL 943 “Ground-Fault Circuit Interrupters”
- CSA C22.2 No. 144.1 “Ground-Fault Circuit Interrupters”

Note: iPhones running iOS older than version 10 and Android running versions older than 6 are not officially supported by the DITRA-HEAT-E-RS1 App.

Power Module
The DITRA-HEAT-E-RRS and DITRA-HEAT-E-RR power module is certified or listed to the following standards:
- Listed to UL 60730-1, UL 60730-2-9, and UL 943
- Certified to CSA E60730-1, CSA E60730-2-9, and CSA C22.2 No. 144.1

Product Item Numbers

6.4 Schluter®-DITRA-HEAT — Uncoupling and waterproofing membrane

Item No.	Item	Dimensions
DH5 12M	Roll	3' 2-5/8" x 41' 10-3/4" = 134.5 ft² *(0.98 m x 12.76 m = 12.5 m²)*
DH5 MA	Sheet	3' 2-5/8" x 2' 7-3/8" = 8.4 ft² *(0.98 m x 0.80 m = 0.78 m²)*

6.4 Schluter®-DITRA-HEAT-DUO — Uncoupling and waterproofing membrane with thermal break

Item No.	Item	Dimensions
DHD8 10M	Roll	3' 2-5/8" x 33' 6-1/2" = 108 ft² *(0.98 m x 10.20 m = 10 m²)*
DHD8 MA	Sheet	3' 2-5/8" x 2' 7-3/8" = 8.4 ft² *(0.98 m x 0.80 m = 0.78 m²)*

6.4 Schluter®-DITRA-HEAT-PS — Peel & stick uncoupling and waterproofing membrane

Item No.	Item	Dimensions
DHPS5 12M	Roll	3' 2-5/8" x 41' 10-3/4" = 134.5 ft² *(0.98 m x 12.76 m = 12.5 m²)*
DHPS5 MA	Sheet	3' 2-5/8" x 2' 7-3/8" = 8.4 ft² *(0.98 m x 0.80 m = 0.78 m²)*

6.4 Schluter®-DITRA-HEAT-DUO-PS — Peel & stick uncoupling and waterproofing membrane with thermal break

Item No.	Item	Dimensions
DHDPS8 10M	Roll	3' 2-5/8" x 33' 6-1/2" = 108 ft² *(0.98 m x 10.20 m = 10 m²)*
DHDPS8 MA	Sheet	3' 2-5/8" x 2' 7-3/8" = 8.4 ft² *(0.98 m x 0.80 m = 0.78 m²)*

6.4 Schluter®-DITRA-HEAT-E-HK — Heating Cable

Item No.	Heating Cable Length		Area Covered per Cable Spacing				Total Power	Avg. Power per Unit Area per Cable Spacing				Current
			Regular 3 Stud		Alternating 3-2 Stud			Regular 3 Stud		Alternating 3-2 Stud		
	(ft)	(m)	(ft²)	(m²)	(ft²)	(m²)	(W)	(Watts/ft²)	(Watts/m²)	(Watts/ft²)	(Watts/m²)	(Amps)
Heating Cable (120 V)												
DHE HK 120 11	35.3	10.8	10.7	1.0	8.9	0.8	135	12.6	136	15.2	164	1.1
DHE HK 120 16	52.9	16.1	16.0	1.5	13.3	1.2	203	12.7	136	15.2	164	1.7
DHE HK 120 21	70.5	21.5	21.3	2.0	17.8	1.7	270	12.7	136	15.2	164	2.3
DHE HK 120 27	88.2	26.9	26.7	2.5	22.2	2.1	338	12.7	136	15.2	164	2.8
DHE HK 120 32	105.8	32.2	32.0	3.0	26.7	2.5	405	12.7	136	15.2	164	3.4
DHE HK 120 38	124.1	37.8	37.5	3.5	31.3	2.9	475	12.7	136	15.2	164	4.0
DHE HK 120 43	141.1	43.0	42.7	4.0	35.6	3.3	540	12.7	136	15.2	164	4.5
DHE HK 120 51	169.8	51.8	51.4	4.8	42.8	4.0	650	12.7	136	15.2	164	5.4
DHE HK 120 64	212.9	64.9	64.4	6.0	53.7	5.0	815	12.7	136	15.2	164	6.8
DHE HK 120 73	240.2	73.2	72.7	6.8	60.6	5.6	920	12.7	136	15.2	164	7.7
DHE HK 120 83	275.5	84.0	83.3	7.7	69.4	6.5	1055	12.7	136	15.2	164	8.8
DHE HK 120 92	303.0	92.4	91.7	8.5	76.4	7.1	1160	12.7	136	15.2	164	9.7
DHE HK 120 102	336.9	102.7	101.9	9.5	84.9	7.9	1290	12.7	136	15.2	164	10.7
DHE HK 120 113	372.2	113.4	112.6	10.5	93.8	8.7	1425	12.7	136	15.2	164	11.9
DHE HK 120 134	444.0	135.3	134.3	12.5	111.9	10.4	1700	12.7	136	15.2	164	14.2
Heating Cable (240 V)												
DHE HK 240 11	35.3	10.8	10.7	1.0	8.9	0.8	135	12.6	136	15.2	164	0.6
DHE HK 240 16	53.1	16.2	16.1	1.5	13.4	1.2	203	12.6	136	15.2	164	0.8
DHE HK 240 21	70.6	21.5	21.4	2.0	17.8	1.7	270	12.7	136	15.2	164	1.1
DHE HK 240 27	88.2	26.9	26.7	2.5	22.2	2.1	338	12.7	136	15.2	164	1.4
DHE HK 240 32	105.8	32.2	32.0	3.0	26.7	2.5	405	12.7	136	15.2	164	1.7
DHE HK 240 38	124.1	37.8	37.5	3.5	31.3	2.9	475	12.7	136	15.2	164	2.0
DHE HK 240 43	141.0	43.0	42.6	4.0	35.5	3.3	540	12.7	136	15.2	164	2.3
DHE HK 240 53	176.3	53.7	53.3	5.0	44.4	4.1	675	12.7	136	15.2	164	2.8
DHE HK 240 64	211.6	64.5	64.0	5.9	53.3	5.0	810	12.7	136	15.2	164	3.4
DHE HK 240 75	248.2	75.7	75.1	7.0	62.6	5.8	950	12.7	136	15.2	164	4.0
DHE HK 240 85	282.1	86.0	85.3	7.9	71.1	6.6	1080	12.7	136	15.2	164	4.5
DHE HK 240 103	339.4	103.4	102.7	9.5	85.6	7.9	1300	12.7	136	15.2	164	5.4
DHE HK 240 129	425.8	129.8	128.8	12.0	107.3	10.0	1630	12.7	136	15.2	164	6.8
DHE HK 240 145	480.5	146.5	145.3	13.5	121.1	11.3	1840	12.7	136	15.2	164	7.7
DHE HK 240 167	551.0	167.9	166.7	15.5	138.9	12.9	2110	12.7	136	15.2	164	8.8
DHE HK 240 183	605.9	184.7	183.3	17.0	152.7	14.2	2320	12.7	136	15.2	164	9.7
DHE HK 240 204	673.8	205.4	203.8	18.9	169.9	15.8	2580	12.7	136	15.2	164	10.7
DHE HK 240 225	744.4	226.9	225.2	20.9	187.7	17.4	2850	12.7	136	15.2	164	11.9

Schluter®-DITRA-HEAT-E-HK-RK Heating Cable Repair Kit and Schluter®-DITRA-HEAT-E-HK-SK Heating Cable Splice Kit

DITRA-HEAT-E-HK-RK is a repair kit for DITRA-HEAT-E-HK heating cables. The kit contains all the material to replace one section of heating cable (gray section) up to 10" *(25 cm)* long or less in the event of damage, such as cuts by other trades during installation.

DITRA-HEAT-E-HK-SK is a splice kit for DITRA-HEAT-E-HK heating cables. The kit contains all the material to replace one factory splice of the heating cable.

Please contact Customer Service for ordering information.

WARNINGS

Do not use either the repair kit or the splice kit to splice different heating cables together. The kits are only intended for making repairs to a single DITRA-HEAT-E-HK heating cable.

Repairs must only be made by a qualified electrician and in accordance with the DITRA-HEAT Repair Procedure, the National Electric Code (USA) or Canadian Electric Code Part I (CAN) and all applicable local electrical and building codes. Failure to follow these Repair Procedure instructions and applicable codes may result in personal injury or property damage or failure of the repair or splice.

Never cut the heating cable. The heating cable cannot be shortened or altered to fit. This could change the cable resistance and could lead to a fire.

DISCLAIMER:

Any deviation from the DITRA-HEAT Installation Handbook during initial installation (including but not limited to damage to the Schluter®-DITRA-HEAT-E-HK heating cables) has voided the Schluter®-DITRA-HEAT Limited System Warranty and other applicable warranty coverage. WARRANTY COVERAGE IS NOT REINSTATED UPON REPAIR OF THE HEATING CABLE.

Schluter Systems is not responsible or liable under any circumstances for determining the suitability of a Repair Kit or Splice Kit for the Owner's intended purpose.

TO THE EXTENT PERMITTED BY LAW, SCHLUTER SYSTEMS DISCLAIMS ANY AND ALL WARRANTIES, REPRESENTATIONS OR CONDITIONS, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL LIABILITY ARISING FROM REPAIR SERVICES PROVIDED BY AN ELECTRICIAN.

It is recommended that prior to commencing a repair, any known deviations from the DITRA-HEAT Installation Handbook and/or applicable codes be corrected.

6.4 Schluter®-DITRA-HEAT-E-RS1/WiFi/-RT/-R

Thermostats

Item No.	Description
DHE RT 105/BW	SMART WiFi app-based programmable thermostat in white, compatible with major voice controlled automation software
DHE RT 104/BW	WiFi and touchscreen programmable thermostat in white
DHE RT 102/BW	Touchscreen programmable thermostat in white
DHE RT 103/BW	Non-programmable thermostat in white

6.4 Schluter®-DITRA-HEAT-E-RRS/-RR

Power modules

Item No.	Description
DHE RR 2/BW	Power module for use with the DHE RT 105/BW
DHE RR 1/BW	Power module for use with DHE RT thermostats

8.1 Schluter®-KERDI-BAND

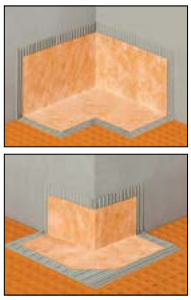
Waterproofing strips

Item No.	Width	Length	Thickness
KEBA 100/125/5M	5" – *12.5 cm*	16' 5" – *5 m*	4 mil
KEBA 100/125/10M	5" – *12.5 cm*	33' – *10 m*	4 mil
KEBA 100/185/5M	7-1/4" – *18.5 cm*	16' 5" – *5 m*	4 mil
KEBA 100/250/5M	10" – *25 cm*	16' 5" – *5 m*	4 mil
KEBA 100/125	5" – *12.5 cm*	98' 5" – *30 m*	4 mil
KEBA 100/185	7-1/4" – *18.5 cm*	98' 5" – *30 m*	4 mil
KEBA 100/250	10" – *25 cm*	98' 5" – *30 m*	4 mil

8.1 Schluter®-KERDI-FLEX

Waterproofing strips for use above movement joints

Item No.	Width	Length	Thickness
FLEX 125/5M	5" – *12.5 cm*	16' 5" – *5 m*	12 mil
FLEX 250/5M	10" – *25 cm*	16' 5" – *5 m*	12 mil
FLEX 125/30	5" – *12.5 cm*	98' 5" – *30 m*	12 mil
FLEX 250/30	10" – *25 cm*	98' 5" – *30 m*	12 mil



8.1 Schluter®-KERDI-KERECK-F

Waterproofing corners

Item No.	Thickness	Packaging
KERECK / FI 2	4 mil	2 Inside corners
KERECK / FI 10	4 mil	10 Inside corners
KERECK / FA 2	4 mil	2 Outside corners
KERECK / FA 10	4 mil	10 Outside corners

8.3 Schluter®-KERDI-FIX — Adhesive/sealant

Item No.	Description
KERDIFIX / *color**	Cartridge - 9.81 fl oz *(290 ml)*
KERDIFIX 100 G	Tube - 3.38 fl oz *(100 ml)*

*Color Codes

BW — Bright white

G — Grey

To complete the item number, add the *color* code (e.g., KERDIFIX / **BW**).

Schluter®-DITRA-ROLLER — Used to embed uncoupling membranes in the bond coat

Item No.	Width
DIRO	14-1/2" *(37 cm)*

Schluter®-DITRA-HEAT/-DITRA-XL-TROWEL — Trowel

Item No.	Notch Size	Packaging
TRL-DHXL	1/4" x 1/4" *(6 mm x 6 mm)*	1 unit

WARRANTIES

Schluter-Systems products and systems are covered under our warranty program, as applicable. For details and to access Schluter Systems' warranty documents:

Visit www.schluter.com/warranties

Or scan here

To obtain hard copies, please contact Customer Service at: 800-472-4588 (USA) or 800-667-8746 (Canada).

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