Variocomp EZYMIX Screed Installation Guide

The Variocomp system was originally designed for use with the Variocomp T7 filling compound. However, due to supply-chain constraints and the limited shelf life of this imported product, Central Heating New Zealand has partnered with New Zealand–based dry-mortar manufacturer Ezymix to provide a locally produced, readily available, and fully supported alternative.

The combination of Ezymix EM202 (floor levelling compound) and Ezymix EM4716 (adhesive primer) has been assessed, approved, and jointly supported by both Central Heating New Zealand and Ezymix for use with Variocomp underfloor heating systems.

This guide outlines the additional requirements and modified installation procedures when using EM202 and EM4716 with Variocomp. It must be used in conjunction with the Variocomp Design & Installation Manual, which remains the primary reference for all system components other than the filling compound and primer.

Contents

1. Products Covered

1.1 Ezymix EM202 Floor Levelling Compound:

- Type: Polymer-modified, cement-bound, self-levelling thin-bed screed; indoor use only.
- Mixing water: 4.0–4.4 L per bag (do not exceed; over-watering reduces strength and increases shrinkage/cracking).
- Coverage (Variocomp fill): ~2.0 m² per 20kg bag **= 10kg/m² (includes 2nd coat).**
- Working time (pot life): ~30 min @ 20 °C.
- Trafficable (typical @20 °C): Light 2–6 h; Heavy ~12 h
- Heatable: After ~12 h (see commissioning section).
- Residual moisture before covering: ≤ 0.5 CM% (unheated) / ≤ 0.3 CM% (heated).
- Application temperatures: Ambient +10 °C to +25 °C; substrate +8 °C to +30 °C.
- Storage: Dry, on pallets; max. 6 months.

1.2 Ezymix EM4716 Adhesive Primer:

- Coats: Applied in two coats when used for Variocomp.
- Dilution: 3 parts water : 1 part EM4716 (by volume).
- Coverage: 10 L container (concentrate) yields ~40 L mixed, covering ~100 m² per coat (guide) = 0.1L/m² per coat x 2 **= 0.2L/m².**
- Application temperatures: Ambient +5 °C to +30 °C; substrate +10 °C to +25 °C. Primer is frost-sensitive: store and use within stated temperature limits.

Note: Central Heating NZ (CHNZ) does not supply Ezymix products, purchase is **direct from Ezymix**.

2. Substrate Requirements

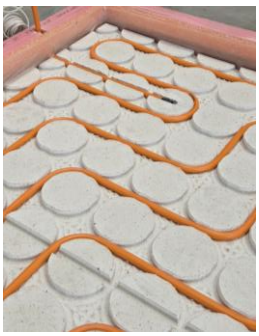
Follow Variocomp Manual Chapter 3 for substrate flatness, load-bearing, moisture, and coordination. In addition, for EM202:

- **Substrate temperature**: ≥ **+8 °C** before priming and pouring.
- **Moisture**: Substrates must be **dry, clean, dust- and grease-free**.
- **No standing water**. Wet trades must be completed and dry prior to installation.
- **Vapour barriers/retarders** and **movement joints** remain as per Variocomp manual.

3. Preparation

Follow the Varicomp manual (Ch. 4) for the installation process of edge insulation, membrane, panels, and pipe;

1. Install **edge insulation strip** and **PE construction foil** per manual (Ch. 4.1–4.2).
2. Install **movement joints** in door ways and where ever spaces exceed the 12m maximum length or 80m² maximum area (Ch. 2.7). These will be shown on drawings produced by CHNZ for this system.
3. Lay **VarioComp boards** (*apply first coat primer now*) and **pipe** per manual (Ch. 4.4–4.5).
4. Fit conduits and/or probes for floor sensors.
5. Complete **pressure test** (water or air) per manual (Ch. 4.6 & 7.1).
6. **Keep the system under pressure** during filling/levelling.



4. Primer System – EM4716 (Two Coats)

Once panels are laid two coats of diluted **EM4716** are required to be applied to the Variocomp system to ensure it is suitable for use with EM202 compound.

Coat 1 – After laying VarioComp boards (before pipe):

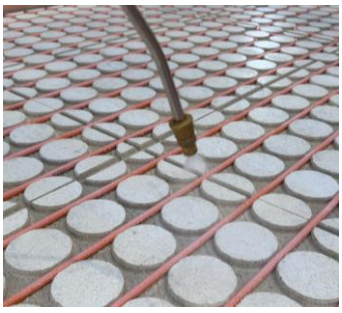
- Ensure board surface is vacuumed clean.
- Apply uniformly with suitable sprayer (i.e. Knapsack Sprayer). Apply sufficiently to saturate the Variocomp boards but to avoid puddling.
- Allow to dry to a clear film (no wet sheen) before proceeding.

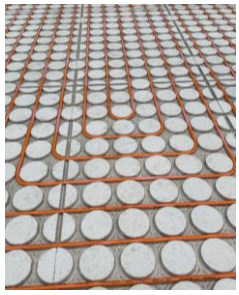
Coat 2 – After laying and pressure-testing the pipes:

- Clean surface again (vacuum).
- Apply second coat uniformly. Apply sufficiently to saturate the Variocomp boards but to avoid puddling.
- Allow to dry fully to a clear film before EM202 application.

Environmental: Avoid strong airflow and direct sun. Keep RH ≤ 70%.

Coverage: ~100 m² per 10 L concentrate (diluted to 40L total volume). Allowing for 2 coats to be applied 20L of concentrate is required per 100m² floor area or **0.2L/m²**.





5. Filling Compound Application – EM202

Once the Variocomp system is ready for filling with the EM202 compound refer to the Ezymix documentation and the guidelines below:

5.1 Mixing:

- **Water:** mix each 20kg bag with 4-4.4L of water, do not use excess water (Guidance is 4.3L for first coat and 4.2L for second coat).
- **Tools**: High-torque drill (≥ 1000 W) with **suitable mixing paddle**; clean 30 L bucket.

1. **Process**:
    1. Measure clean water accurately into a bucket.
    2. Add EM202 while mixing; mix **1.5–2.0 minutes @ ~600 rpm** to a smooth, lump-free consistency (scrape down bucket during/after each mix).
    3. **Clean buckets and tools** periodically during installation.

5.2 Application:

Fill the Variocomp board routings so the **pipe crown is flush with the board surface** and achieve a smooth, level finish:

- **Readiness Check**
    - EM4716 coat 2 is **dry**, clear film.
    - Pipes are **under pressure**, joints passed the pressure test.
    - Movement joints are **in place** and respected through all layers.

- **Pour & Place**
    - Discharge EM202 onto the prepared surface in workable sections.
    - Use a **scraper** to move material, allowing it to **self-level** into the routings.
    - Avoid local overfill at board edges; maintain **flush level with board surface**.
    - Around **manifold/transition areas** (where boards may be omitted), use previously set **levelling aids** (offcuts/blank boards) to guide the finish height (per Variocomp manual Ch. 4.4–4.5).

- **Working Time**
    - **Pot life ~20–30 min** (site-dependent). Plan batch sizes accordingly. Clean buckets and tools frequently.

- **Movement Joints**
    - **Continue joints** through the EM202 layer (max field **80 m²**, max side **12 m**) as per Variocomp manual Ch. 2.7.
    - Keep pipe penetrations through joints to a minimum.

5.3 Finishing & Additional Levelling

EM202 typically achieves a very level finish in one application. For best results:

- If minor ridges/trowel lines occur, **remove once hard-set** (scrape lightly).
- Protect freshly installed surfaces from drafts, direct sun, and heat sources during early cure.
- **Do not use dehumidifiers** for the first 2 days after completion.
- If **sanding** is required, perform it within 24 h of placement.

If additional levelling of the finished surface is required to achieve a smoother finisher or increase the finished height of the system this can also be completed with EM202. For additional layers of EM202 two methods are possible:

1. **Wet-on-wet application directly over the initial layer:**
    - **Application window**: within 3hrs in Winter and 1.5hrs in Summer from first pour. Apply once 1st coat is firm but not completely set.

2. **Primer first application outside of the wet-on-wet window:**
    - Re-prime with **EM4716 (3:1)**, allow to dry, then apply EM202 levelling
    - pass.

6. Drying & Curing

Once the Ezymix EM202 system has been applied the finished Variocomp system shall be left to dry before any further work is completed on site, the typical drying times are:

- **For Light traffic**: ~2–6 h
- **For Heavy traffic**: ~12 h

The system should be protected from **drafts**, **rapid drying**, and **surface contamination** during curing over the first 2 days.

The EM202 system shall be allowed to suitably cure before heat is applied to prevent excessive shrinkage and cracking, the minimum wait time is **12 h @ 20 °C** before any controlled heat is introduced (see Section 7).

Times are **guidance** and depend on temperature, RH, and ventilation. Cooler, more humid sites need longer to suitably cure.

7. Heating Commissioning

Once the EM202 has cured the Variocomp system can be commissioned and heating operation started, take care of the following points:

- Do **not** initiate functional heating sooner than **12 h** after EM202 placement at ~20 °C (extend in cool/damp conditions).
- **Max flow temperature**: **≤ 50 °C**.
- Use a **gradual ramp** strategy typical for calcium-sulphate/self-levelling compounds:
  - Start at **25–30 °C** flow, hold 24 h.
  - Increase by **~5 °C per day** to the design temperature (not exceeding 50 °C).
  - Maintain adequate background ventilation (no drafts).

8. Flooring Over EM202

The suitability and installation method for the application of floor coverings over the finished Variocomp system with EM202 compound requires careful consideration.

- Ensure the surface is **clean, dry, smooth** and meets the **adhesive/flooring manufacturer's** moisture and strength criteria.
- Verify residual moisture via **CM method ≤ 0.3 CM%** (or as required by the flooring/adhesive manufacturer).
- Overall floor **thermal resistance ≤ 0.15 m²K/W** (recommended **≤ 0.10 m²K/W**).

Refer to the Variocomp manual **(Ch. 5)** for flooring application considerations. Note the following specific considerations:

Tiles/Stone/Ceramic:

- Use **flexible S1-class** tile adhesives.
- Ezymix recommends **EM250** or **EM251** (**C2TE S1**).
- In wet areas, use **EM240 Waterproofing Membrane** as the sealing system.

Soft Floor Coverings & Resin:

- For carpet, linoleum, or resin, apply an **additional levelling layer** (smoothing compound) to achieve manufacturer's tensile bond and smoothness requirements.
- Over EM202, you may use **EM202 again** for minor level corrections, or an appropriate smoothing compound (consult Ezymix if using a non-EM compound for compatibility and primer requirements).
- confirm primer compatibility with selected adhesives/compounds (EM4716 can be used per substrate table)

Timber/Laminate/PVC Boards:

- As per main manual (Ch. 5.8):
  - **Floating** installation on **≤ 2 mm** underlay preferred.
  - **Glued engineered/laminate** OK with **manufacturer-approved** adhesives (observe any primer requirements over EM202).
  - **Solid wood** gluing is **not permitted**.

9. Compliance & Warranty

The Variocomp system used with Ezymix EM4716 primer and EM202 levelling compound is an approved and supported configuration in New Zealand, provided the following are met:

- **All Variocomp system components** (boards, pipes, manifolds, pressure testing, movement joints) to be installed as per the Variocomp manual.
- **Screed/Primer** steps must comply with Ezymix TDS limits (mix ratios, environmental limits, drying/curing, moisture thresholds, storage).
- **Storage**: EM202 bags ≤ 6 months dry; EM4716 ≤ 12 months sealed, frost-free storage (+10 to +30 °C).
- **Testing**: Pressure test **before** pouring; maintain pressure during pouring.
- **Movement joints**: Must be carried through EM202 layer and into the floor finish as required.
- **Flooring**: Follow floor covering manufacturers' requirements for (primers/adhesives/moisture).
- **Heating**: Do not exceed **50 °C** flow; follow controlled ramp-up.

10. Support

Should any issues occur or for further technical advice with these systems please use the following guidelines for support:

Contact Central Heating New Zealand (✉: info@centralheating.co.nz 📞: 0800 357 1233) for:

- Project design and specification advice for Variocomp systems
- Quotes and proposals (including PC sums for EM202 and EM4716)
- Installation guidance for Variocomp panels and pipe layout
- General underfloor heating system queries

Contact Ezymix (✉: info@ezymix.co.nz 📞: (07) 888 4324) for:

- Purchasing EM202 Floor Levelling Compound and EM4716 Adhesive Primer
- Technical support for mixing, application, and curing times
- Advice on additional levelling requirements or compatibility with floor finishes
- Special project requirements related to flooring compounds

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