# Betonpav Zerojoint

***Concretes with guaranteed performance***
***Specially for flooring with no joints***
***Compliant with standards UNI EN 206 and UNI 11104 and CNR DT 211:2014***

## DESCRIPTION

Controlled expansion and shrinkage compensation concrete specifically for flooring, even with reduced thickness, with a minimum compressive strength class of C25/30:

- flooring for highly automated goods storage and handling warehouses;
- collaborating slabs with large span prefabricated beams;
- reduced floor thicknesses of as little as 10 cm.

**Betonpav Zerojoint** is a very high performance concrete made with the most innovative additives that technology can offer, guaranteeing the required performance in terms of compressive strength, setting times and dimensional stability.

With careful design, installation and curing and with the use of suitable contrasting reinforcement, **Betonpav Zerojoint**, allows the creation of large surfaces without contraction joints even if the wet curing is not prolonged over an extended period (at least 2 days).

**Betonpav Zerojoint** significantly reduces the maintenance of joints during operation; it is particularly suitable for highly automated warehouses where any unevenness could compromise the correct operation of handling systems.

**Betonpav Zerojoint**is designed for each specific job based on the maximum expansion and residual expansion requirements. Figure 1 shows the trend in shrinkage/expansion over time of some **Betonpav Zerojoint** mixes based on their specific composition (green, red and purple curves) compared with that of ordinary concrete of the same strength class.

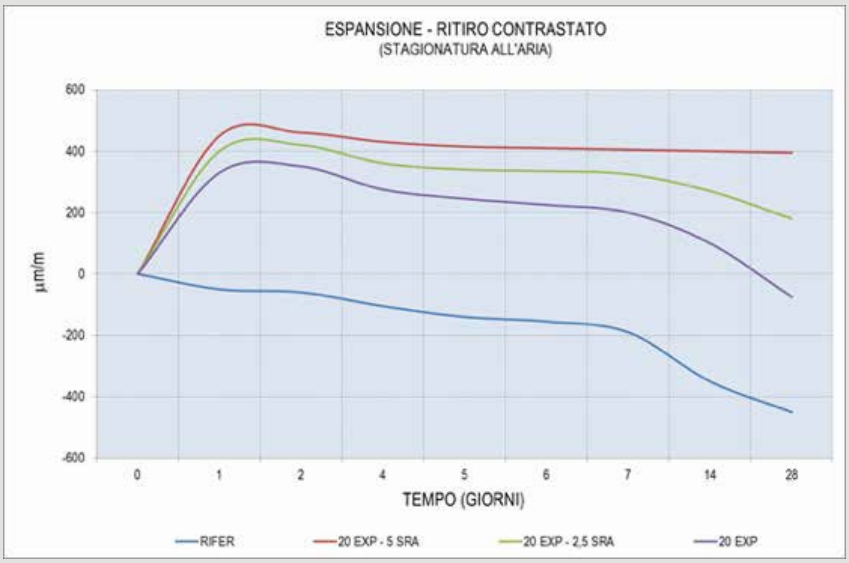


**Figure 1:** Shrinkage/expansion over time of various **Betonpav Zerojoint** mixes and an ordinary reference concrete

**Betonpav Zerojoint** is available in a range of strength classes that will ensure durability in accord with the environmental conditions. Thanks to its high dimensional stability, **Betonpav Zerojoint** is suitable for thin concrete floors (>10 cm), making it possible to limit the occurrence of curling, which is characteristic of traditional thin floors, to acceptable values.

**Betonpav Zerojoint** is also available in the following versions:

- **Betonpav Zerojoint SF** (Steel Fiber);
- **Betonpav Zerojoint PF** (Polymeric Fiber).

which offer greater control over the extent of any cracks.

The following table can help to define the **Betonpav Zerojoint** characteristics that should be included in the specifications.

| Parameters to be defined when specifying BETONPAV EXPAN | STRENGTH CLASS | CONSISTENCY CLASS | EXPOSURE CLASS | MAXIMUM DIAMETER | FIBRE REINFORCED |
|---|---|---|---|---|---|
| | from C25/30 to C35/45 | S3, S4, S5 | XC, XD, XA, XF | 16, 32 | SP, SF |

Tables 1, 2 and 3 show, by way of example, some characteristics of **Betonpav Zerojoint C25/30**. The values quoted reflect our best experience and should be regarded as indicative. It is advisable to place the order early enough to carry out an initial check of the mixture to confirm its actual performance.

**Table 1:**
Approximate finishing times of **Betonpav Zerojoint C25/30** depending on temperature

| FINISHING OPERATIONS | START | | END | |
|---|---|---|---|---|
| | 10°C | 20°C | 10°C | 20°C |
| **Betonpav Zerojoint C25/30** | 8 h | 6 h | 10 h | 8 h |
| **Normal C25/30 concrete** | 12 h | 9 h | 15 h | 11 h |

As you can see, thanks to using **Betonpav Zerojoint**, the finishing times can be shortened, on average, by about 3–5 hours.

**Table 2:**
Guideline compressive strengths of **Betonpav Zerojoint C25/30** depending on temperature

| TIME (DAYS) | COMPRESSIVE STRENGTH (MPA) 20°C | 10°C |
|---|---|---|
| **3** | 15 | 10 |
| **7** | 25 | 21 |
| **28** | 37 | 38 |

**Note:** The values were obtained with wet curing (R.H. = 95%) in the laboratory and on specimens compacted to minimise trapped air content. The values actually obtainable on site depend on the temperature and relative humidity conditions to which the structure is exposed, as well as the degree of compaction of the structure.

**Attention:** given the variability of the environmental conditions to which the paving may be subjected, do not rely on these data alone to establish when the paving can be walked on or entered into service.

**Table 3:**
Principal characteristics of **Betonpav Zerojoint C25/30** (guideline values)

| NORMAL STRENGTH | PROCTOR SETTING TIME START AT 20°C | PROCTOR SETTING TIME END AT 20°C | COUNTERACTED EXPANSION IN ACCORD WITH UNI 8148 METHOD B AFTER 2 DAYS | COUNTERACTED EXPANSION IN ACCORD WITH UNI 8148 METHOD B AFTER 28 DAYS | SECANT ELASTIC MODULUS AT 28 DAYS (AT 20°C AND RH>95%) |
|---|---|---|---|---|---|
| **MPa** | **min** | **min** | **µm/m** | **µm/m** | **MPa** |
| 30 | 390 | 500 | 450 | 200 | 30000 |