

GIVING NEW DIMENSIONS TO CONCRETE

# EXTENSIA



Extensia™: innovative technology in low shrinkage concrete for commercial and industrial floors.

## Applications

Extensia™ is a low shrinkage concrete for the use in ground bearing slabs, with **joint spacing at 20 m x 20 m (400 m<sup>2</sup>)** with **controlled cracking without the inclusion of mesh or steel fibres**, for use in industrial, warehousing and commercial floors.

## Advantages

Extensia™ is a well adapted solution for highly demanding slabs that allows for an **increased productivity of the floor** through:

- ▶ **Increased flexibility in floor design:** the mechanical and shrinkage properties of Extensia™ allow design of thinner and unreinforced slabs, with increased joint spacing.
- ▶ **Rapid execution of floor construction:** the floor construction sequence can be shortened with Extensia™, mainly due to the possibility of early power trowelling of the surface and early cutting of joints.
- ▶ **Early loading at 14 days:** due to its superior mechanical performance, Extensia™ slabs can be loaded at 14 days.
- ▶ **Reduction in maintenance costs:** the drastic reduction of joints, the limited curling at remaining joints combined with the high surface durability of Extensia™ allow substantial savings in maintenance costs of the floor.

## Characteristics

Extensia™ mix-design allows **reduction of drying shrinkage**, typically less than 250  $\mu\text{m}/\text{m}$  at 28 days at 20° C/60% RH. Distances up to 20 m between joints are achievable without the use of steel mesh or steel fibres.

Extensia™ also presents a high level of mechanical performance:

- **compressive strength** (measured on cubes) in the order of 20 N/mm<sup>2</sup> at 1 day, 50 N/mm<sup>2</sup> at 7 days, 70 N/mm<sup>2</sup> at 28 days;
- **flexural strength** of 6 N/mm<sup>2</sup> at 28 days in accordance with BS EN12390 part 5;
- the rapid achievement of this high level of mechanical resistance, allows:
  - a **reduction of slab thickness** compared to conventional concrete;
  - early loading at 14 days;
  - a **high abrasion resistance** achieving BS-8204: part 2 2002 class Special (pull-off resistance in the range of 1.5 to 3 N/mm<sup>2</sup> - in accordance with pull off test ASTM D4541-02 - slip resistance meets requirements of BS 8204-2: 2002 category C "satisfactory");
  - no need for applications of dry shake to achieve this British Standard classification.

Workability BS-8500 S4 class allows all kind of placement techniques even pumping. Extensia™ can be considered as highly durable thanks to a low oxygen permeability (100.10<sup>-18</sup> m<sup>2</sup>) and a low water porosity (9,9%).



	1 DAY	7 DAYS	28 DAYS
Compressive strength	20 N/mm <sup>2</sup>	50 N/mm <sup>2</sup>	70 N/mm <sup>2</sup>

## INSTRUCTIONS FOR USE

### SUB-BASE PREPARATION

- Sub-base preparation must meet recommendations of The Concrete Society document TR34 section 6, with Sub-base surface tolerance meeting recommendations of TR34 section 6.4.2.
- Materials used for sub-base should follow recommendations of TR34 section 6.4.1.
- A plastic sheet slip membrane of at least 250  $\mu\text{m}$  thickness is required.
- Slip membrane shall be laid without creases and overlapped at the edges by at least 300 mm.

### JOB-SITE PREPARATION

- Walls and columns should be isolated as per guidance given in TR34. Correct preparation should avoid restraint of concrete in deformation.

### TRANSPORT

- Check job site accessibility for trucks.
- In case of low accessibility or sand-covered sub-base, plan to use a concrete pump.

### PLACEMENT

- Never add anything to the concrete (water or anything else) on the job site.
- Extensia™ concrete can be laid using traditional methods.
- Surface vibration is mandatory, either with a laser screed or a vibrating beam.
- Extensia™ should be laid in enclosed conditions. In hot conditions evaporation rate should not exceed 1 kg/m<sup>2</sup>/h.
- A minimum thickness of 150mm can be used for ground bearing slabs dependant on loadings, 100 mm for over lay slabs, again dependant on loadings.
- As Extensia™ concrete exhibits expansion in its early age (0,1% of total length of the slab at 20° C/60% RH), a specific placement sequence should be used to ensure free deformation.

### FINISHING

- Finishing can typically begin 5 hours after batching.
- A suitable curing compound should be used to prevent surface moisture loss.
- Slabs constructed over dimensions of 20 m x 20 m should be saw-cut as soon as possible and at a depth of at least one third of slab thickness.

As in any concrete floors, best practices regarding treatment of specific areas such as re-entrant corners should be applied.

