Gruppo Cementirossi S.p.A.

Maxibeton®

Low heat of hydration concretes
Concretes with guaranteed performance
Compliant with standards UNI EN 206 and UNI 11104

Maxibeton® is a special concrete with reduced heat of hydration and a minimum compressive strength class of C25/30.

Maxibeton® is made with special binders that develop very low levels of heat of hydration and with high rate water-reducing admixtures to reduce the cement dosage of the mix, in order to minimise temperature gradients in massive structures. The use of **Maxibeton®** therefore minimises the risk of cracking due to excessive heat development in massive structures with a low surface to volume ratio.

Maxibeton® is particularly well-suited for castings of high mass or thickness, such as:

- raft foundations, plinth foundations, large-diameter piers, retaining walls and walls of tanks for containing liquid, thicker than 70 cm;
- high thickness monolithic bridge decks, foundations for production machinery and stamping presses, foundations for pylons and bridge cable anchors.

Table 1 shows the time course of the temperature gradient (ΔT) measured in a foundation plinth of a bridge pier having a thickness of 3 m between the core and the cortical zones of the casting made with **Maxibeton®**.

Table 1:
Temperature gradients between the "core" and the surface of a 3 m thick foundation plinth made with **Maxibeton®**

h/gg of the casting	6h	12h	24h	3 days
ΔT (°C)	2	4	8	19

Table 2:
Development over time of the compressive strength of **Maxibeton® C25/30** under laboratory conditions (20°C) and for high concrete temperatures typical of thick structures

TIME (DAYS)	COMPRESSIVE STRENGTH (MPA) 20°C	35-40°C
3	15	17
7	26	25
28	39	35

DEFINITION (AND ORDER)	STRENGTH CLASS	CLASSE DI CONSISTENZA	CONSISTENCY CLASS	MAXIMUM DIAMETER	ADIABATIC HEATING
MAXIBETON	from C25/30	from S3 to SCC	XC, XD, XA, XF	32	20°C

MAIN PHYSICAL AND MECHANICAL CHARACTERISTICS OF MAXIBETON C30/37 AND MAXIBETON SCC C30/37		
MAXIBETON	Normal strength	C30/37
	Standard hygrometric shrinkage with R.H. 50% after 6 months	425 µm/m
	Secant elastic modulus at 28 days	35500 mm
	Permeability at 28 days. Penetration of water under pressure (5 atm) in accord with UNI EN 12390-8	10
	Heating under adiabatic conditions	20 °C
MAXIBETON SCC	Normal strength	C30/37
	Standard hygrometric shrinkage with R.H. 50% after 6 months	465 µm/m
	Secant elastic modulus at 28 days	34500 mm
	Permeability at 28 days. Penetration of water under pressure (5 atm) in accord with UNI EN 12390-8	10
	Heating under adiabatic conditions	20 °C