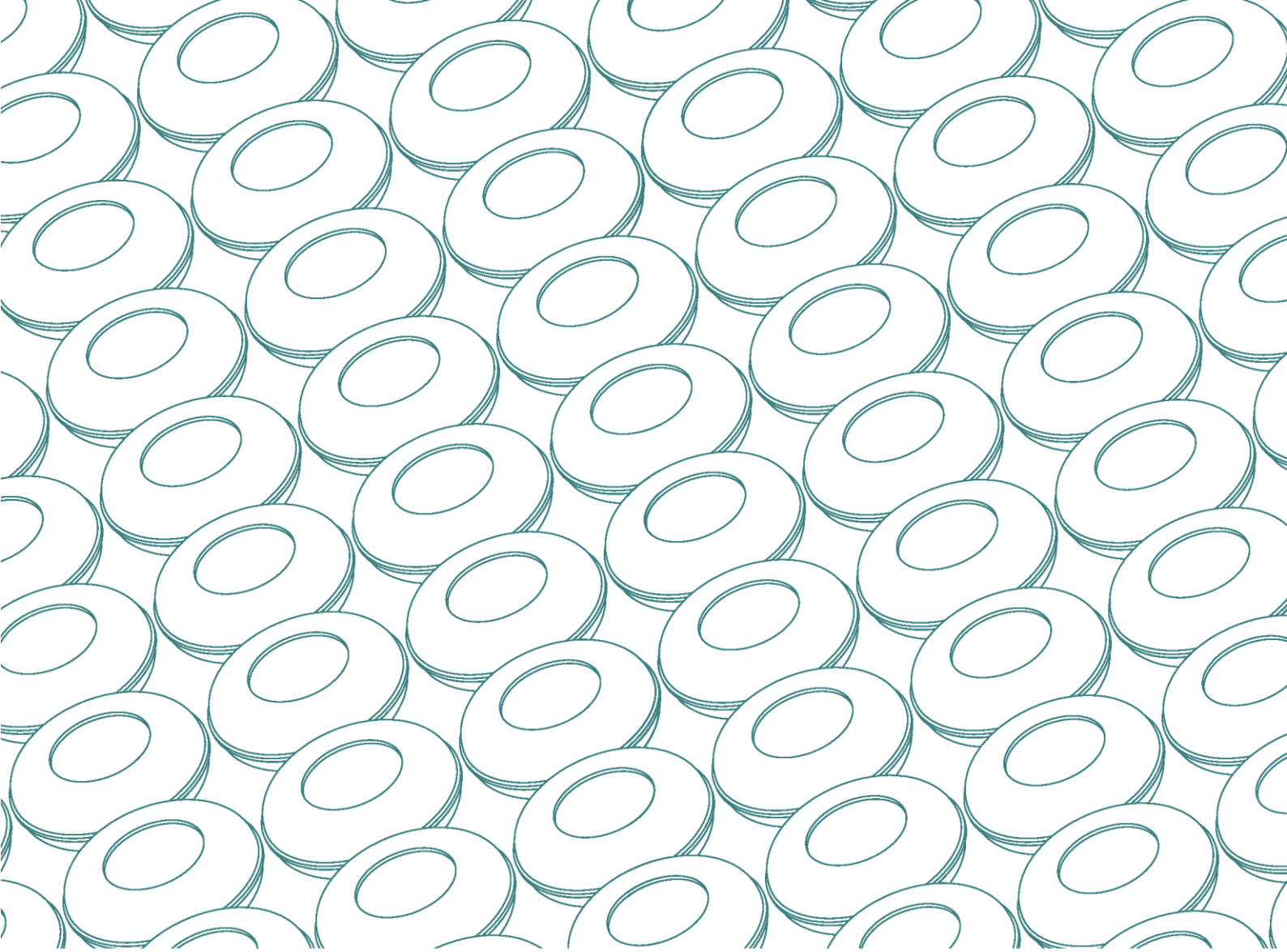


cobiax cbx

FERCA

TECHNICAL CONDITIONS

FERCA

COBIAX CBX SYSTEM

The COBIAX CBX system consists of an integrated set of ellipsoids of polypropylene and metal positioning grids to be placed inside slabs, thereby giving them a cellular geometry.

GEOMETRIC CHARACTERISATION AND TERMINOLOGY

The COBIAX CBX modules are made up of ellipsoids inserted into the positioning grids.

The identification of the COBIAX CBX modules must comply with the following terminology:

COBIAX CBX-S-YYY

The geometric characterisation of the COBIAX CBX modules must comply with the following parameters:

Slab Thickness (h)	[mm]	200	225	250	275	300	325	350	375	400
COBIAX CBX Module		**S-100**	**S-120**	**S-140**	**S-160**	**S-180**	**S-200**	**S-220**	**S-240**	**S-260**
Load Reduction	[kN/m²]	-1.40	-1.64	-1.88	-2.10	-2.32	-2.56	-2.80	-3.10	-3.37
Inertia Correction Factor	[-]	0.93	0.92	0.92	0.91	0.91	0.91	0.91	0.89	0.88
Shear Reduction Factor	[-]	0.50	0.50	0.50	0.50	0.50	0.45	0.45	0.45	0.45
Support Height (A)	[mm]	110	130	150	170	190	230	150	250	270
Void Height (B)	[mm]	100	120	140	160	180	220	140	240	260
No. of Voids	[un/m²]	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16
Void Volume	[m³/m²]	0.056	0.066	0.075	0.084	0.093	0.102	0.112	0.124	0.135
CO_2 Reduction	[ton/m²]	0.012	0.014	0.016	0.018	0.020	0.022	0.023	0.026	0.028
Void Spacing (C)	[mm]	350	350	350	350	350	350	350	350	350

The values referred to must be confirmed with the supplier's specific documentation and verified on site.

EXECUTION PROCEDURES

1. COBIAX CBX SLABS

1.1 PURPOSE

These are generally solid slabs incorporating void cells with an ellipsoidal shape inside them, in accordance with the specifications of the structural design.

The application of this system allows for a reduction in concrete consumption while simultaneously ensuring that the slab performs in accordance with the parameters typical of a solid slab, resulting in a lighter and more efficient solution in terms of the use of materials, concrete and steel.

Although this is a system that is easy to apply, it must nevertheless be supervised by experienced technicians familiar with the system, and the supplier is therefore required to have qualified technicians available to guide, direct and verify the conformity of its application.

The use of untested hybrid systems that do not cover all aspects of the system and its inherent construction process, or that alter the geometric configuration defined in the design, is expressly forbidden, and the system used must have a track record of prior applications.

Slabs incorporating the COBIAX CBX system must fully comply with the procedures, criteria and technical specifications applicable to solid slabs, in particular as regards the characteristics and processes relating to falsework and formwork, the supply and placement of passive or active reinforcement, concreting and concrete curing procedures, and formwork removal conditions.

1.2 CONDITIONS FOR APPLICATION OF THE COBIAX CBX SYSTEM

Slabs incorporating the COBIAX CBX system must comply with the procedures inherent to the execution of solid slabs, in particular as regards formwork and reinforcement placement, in addition to the aspects referred to in this document.

Before applying the COBIAX CBX system, the section resulting from the incorporation of the defined cover, the specified reinforcement and the dimensions of the COBIAX CBX module must be verified.

The bottom reinforcement must be placed so that the first layer is parallel to the orientation of the COBIAX CBX modules to be installed, thereby ensuring the defined cover from the outset.

Before application over the reinforcement, the closure of the void units must be checked; if any unit is found open, it must be closed or replaced.

The COBIAX CBX modules must be installed directly on top of the second layer of the bottom reinforcement and perpendicular to it. Each module, comprising the grid and its respective void units, must be tied to the bottom reinforcement using no fewer than three ties per module.

The spacing between COBIAX CBX modules must comply with the following values, except where specifically defined otherwise in the drawings:

COBIAX CBX Module		S-100	S-120	S-140	S-160	S-180	S-200	S-220	S-240	S-260
Module Spacing	[mm]	350	350	350	350	350	350	350	350	350

Precautions must be taken to avoid walking directly on the polypropylene units; foot traffic should take place on the metal grid.

1.3 CONCRETING CONDITIONS

Concreting of slabs incorporating the COBIAX CBX system must comply with the procedures inherent to the execution of solid slabs, in particular as regards the concreting, vibration and curing of the concrete, in addition to the aspects referred to in this document.

The presence of closed polypropylene cells during the concreting process of COBIAX CBX slabs causes them to become buoyant under the action of the concrete and the necessary vibration.

Preventing this effect is the responsibility of site management, and preventive measures must be taken for this purpose, in particular by providing for the concreting of the slab in two phases or otherwise.

The first concreting phase must allow the bottom of the slab to be filled to a height sufficient to cover the reinforcement and the bottom bars of the positioning grid. In this phase, the concrete should preferably be placed in the spaces between the voids and properly vibrated, so as to ensure the complete filling of the bottom layer.

The second concreting phase should take place as soon as the first layer provides the necessary anchorage to the positioning grids, in compliance with the other considerations set out above.

1.4 MEASUREMENT CRITERIA

The unit price of the COBIAX CBX system includes the metal grids and the void units defined in the design, as well as the works, means and materials inherent to their placement and fixing.

For measurement purposes, the COBIAX CBX system must be measured by square meter, based on the number of void units shown in the drawings and the parameters indicated in the geometric characterisation of the system.

The concrete volume of these slabs will be reduced by the corresponding void volume, and the measurement criteria for concrete, reinforcement or reinforced concrete shall apply.