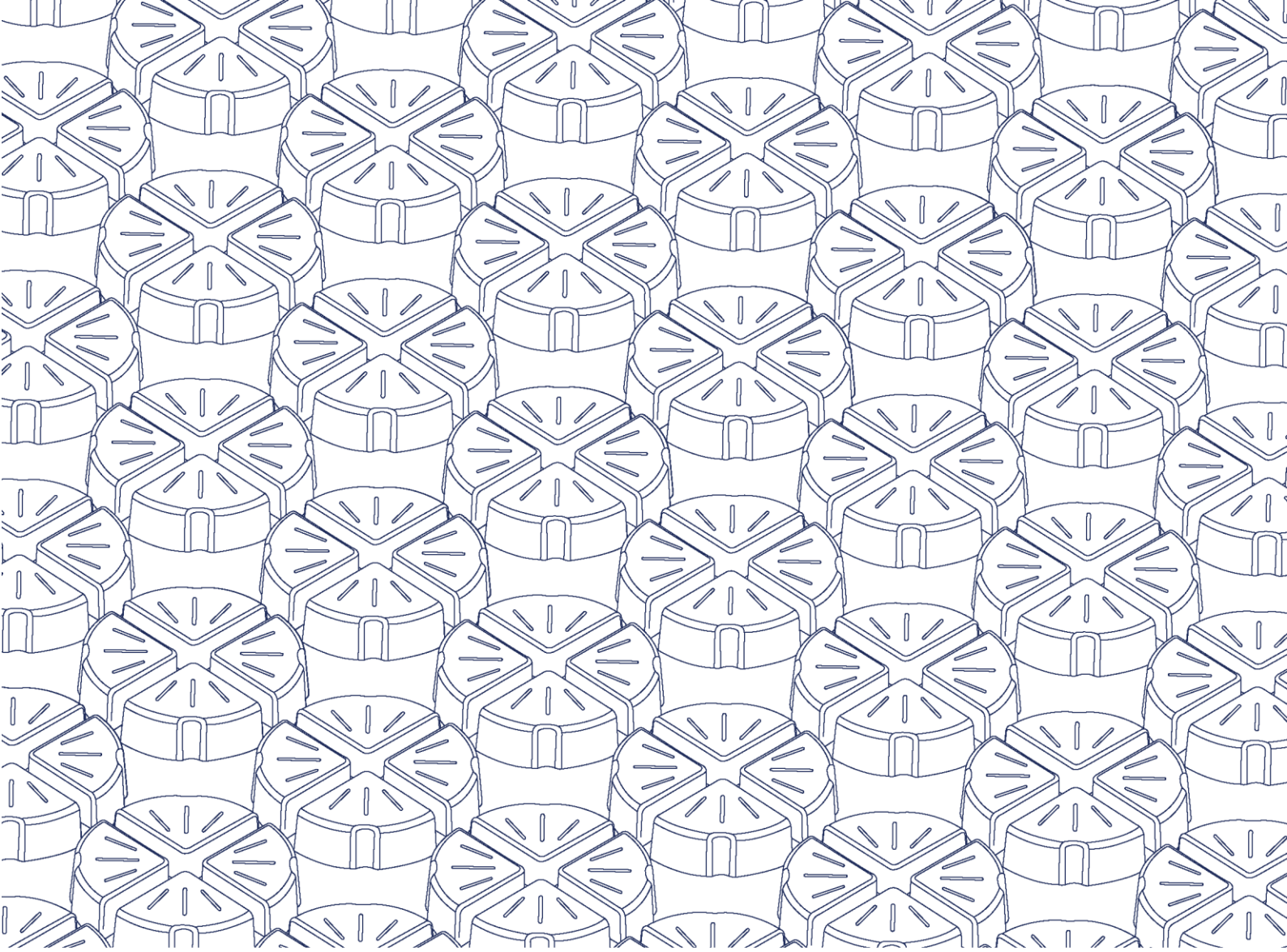
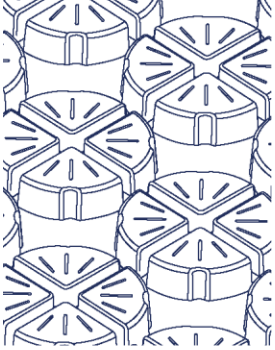


cobiax cls FERCA

TECHNICAL CONDITIONS

FERCA



cobiax cls



SISTEMA COBIAX CLS

The Cobiax CLS system consists of an integrated set of polypropylene modules placed inside slabs, thereby giving them a cellular geometry.

GEOMETRIC CHARACTERISATION AND TERMINOLOGY

Cobiax CLS modules are made up of square pieces that, when butted together, form a circular void inside the slab between the top and bottom reinforcement.

Cobiax CLS modules shall be identified in accordance with the following terminology:

COBIAX CLS-P-YYY

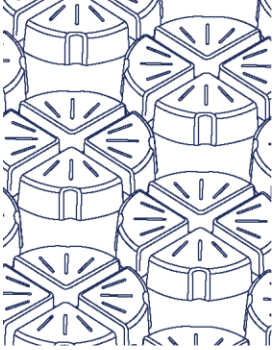
The geometric characterisation of Cobiax CLS modules shall comply with the following parameters:

Slab Thickness (h)	**[mm]**	**200**	**220**	**240**	**250**	**260**	**280**	**300**	**320**	**340**	**350**	**360**	**380**	**400**
Cobiax CLS Module		**CLS-P-110**	**CLS-P-130**	**CLS-P-150**	**CLS-P-150**	**CLS-P-170**	**CLS-P-170**	**CLS-P-190**	**CLS-P-210**	**CLS-P-230**	**CLS-P-230**	**CLS-P-250**	**CLS-P-270**	**CLS-P-290**
Load Reduction	[kN/m²]	-1.14	-1.42	-1.71	-1.71	-1.99	-1.99	-2.27	-2.48	-2.70	-2.70	-2.92	-3.20	-3.41
Inertia Correction Factor	[-]	0.95	0.94	0.92	0.93	0.91	0.93	0.91	0.89	0.88	0.89	0.88	0.85	0.85
Shear Reduction Factor	[-]	0.45	0.45	0.44	0.44	0.44	0.43	0.43	0.43	0.42	0.42	0.42	0.41	0.41
Support Height (A)	[mm]	110	130	150	150	170	170	190	210	230	230	250	270	290
Void Height (B)	[mm]	80	100	120	120	140	140	160	180	200	200	220	240	260
No. of Voids	[un/m²]	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78
Void Volume	[m³/m²]	0.046	0.057	0.068	0.068	0.079	0.079	0.091	0.099	0.108	0.108	0.117	0.128	0.136
CO_2 Reduction	[ton/m²]	0.010	0.012	0.014	0.014	0.017	0.017	0.019	0.021	0.023	0.023	0.025	0.027	0.029
Module Spacing (C)	[mm]	600	600	600	600	600	600	600	600	600	600	600	600	600
Omega Reinforcement Height	[mm]	140	160	180	180	200	220	220	240	260	260	280	300	320

440	**450**	**460**	**480**	**500**	**520**	**550**	**560**	**600**	**620**	**650**	**700**	**760**	**[mm]**	**Slab Thickness (h)**
CLS-P-310	**CLS-P-310**	**CLS-P-330**	**CLS-P-350**	**CLS-P-350**	**CLS-P-390**	**CLS-P-410**	**CLS-P-410**	**CLS-P-410**	**CLS-P-470**	**CLS-P-470**	**CLS-P-530**	**CLS-P-590**		**Cobiax CLS Module**
-3.59	-3.59	-3.87	-4.13	-4.13	-4.38	-4.80	-4.80	-4.80	-5.47	-5.47	-5.98	-6.49	[kN/m²]	Load Reduction
0.85	0.87	0.85	0.84	0.86	0.82	0.83	0.84	0.87	0.81	0.84	0.81	0.81	[-]	Inertia Correction Factor
0.40	0.40	0.40	0.40	0.40	0.39	0.39	0.39	0.39	0.38	0.38	0.36	0.35	[-]	Shear Reduction Factor
310	310	330	350	350	390	410	410	410	470	470	530	590	[mm]	Support Height (A)
280	280	300	320	320	360	380	380	380	440	440	500	560	[mm]	Void Height (B)
2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	[un/m²]	No. of Voids
0.144	0.144	0.155	0.165	0.165	0.175	0.192	0.192	0.144	0.219	0.144	0.239	0.259	[m³/m²]	Void Volume
0.030	0.030	0.032	0.035	0.035	0.037	0.040	0.040	0.030	0.046	0.030	0.500	0.054	[ton/m²]	CO_2 Reduction
600	600	600	600	600	600	600	600	600	600	600	600	600	[mm]	Module Spacing (C)
350	350	370	390	410	430	430	450	450	510	510	570	630	[mm]	Omega reinforcement height

The values stated shall be confirmed against the supplier's specific documentation and verified on site.

FERCA



cobiax cls



PROCEDURES

1. COBIAX CLS SLABS

1.1 PURPOSE

These are generally solid slabs incorporating void cells inside them, in accordance with the Structural design.

The application of this system reduces concrete consumption while ensuring that the slab performs in accordance with the parameters proper to a solid slab, resulting in a lighter solution that is more efficient in terms of material use, concrete and steel.

Although this is an easy system to apply, it must nonetheless be overseen by experienced technicians familiar with the system, and the supplier is therefore required to provide qualified technicians able to guide, direct and verify the conformity of its application.

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

Slabs incorporating the Cobiax CLS system shall 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 curing procedures, and striking conditions.

1.2 CONDITIONS FOR APPLICATION OF THE FERCA CBX SYSTEM

Slabs incorporating the Cobiax CLS system shall 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 CLS system, the section resulting from the defined cover, specified reinforcement and Cobiax CLS module dimensions shall be checked.

Before placing the modules on the reinforcement, the closure of the void units shall be checked; if any unit is found open, it shall be closed or replaced.

The spacing between Cobiax CLS modules shall comply with the following values, except where specifically defined otherwise in the drawings:

Cobiax CLS Module		CLS-P-110 a CLS-P-590
Module spacing	[mm]	600

When installing each module, a minimum of 2 Φ8 omega reinforcements per void must be placed, with the height corresponding to the Cobiax CLS module used.

1.3 CONCRETING CONDITIONS

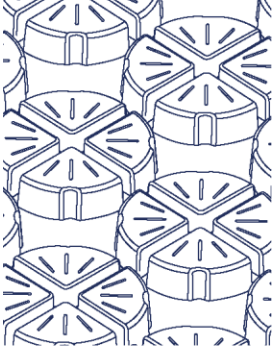
Concreting of slabs incorporating the Cobiax CLS system shall comply with the procedures inherent to the execution of solid slabs, in particular as regards the concreting, vibration and curing process, in addition to the aspects referred to in this document.

The presence of closed polypropylene cells during the concreting of Cobiax CLS slabs causes them to float under the action of the concrete and the vibration required.

Preventing this effect is the responsibility of the site management, which shall take preventive measures for this purpose**, in particular by providing for the slab to be concreted in two stages, among others**.

The first concreting stage shall fill the bottom of the slab to a height sufficient to cover the reinforcement; during this stage, the concrete should preferably be placed in the spaces between the voids and properly vibrated so as to ensure the bottom layer is fully filled.

FERCA



cobiax cls



The second concreting stage shall take place as soon as the first layer provides the necessary anchorage for the modules, in compliance with the other considerations set out above.

1.4 MEASUREMENT CRITERIA

The unit price of the Cobiax CLS system includes the omega bars and the void units defined in the design, as well as the labour, means and materials inherent to their placement and fixing.

For measurement purposes, the Cobiax CLS system shall be measured per square meter based on the number of void units shown in the drawings and the parameters given in the geometric characterisation of the system.

The concrete volume of these slabs shall be reduced by the corresponding void volume, with the measurement criteria for concrete, reinforcement or reinforced concrete applying as appropriate.