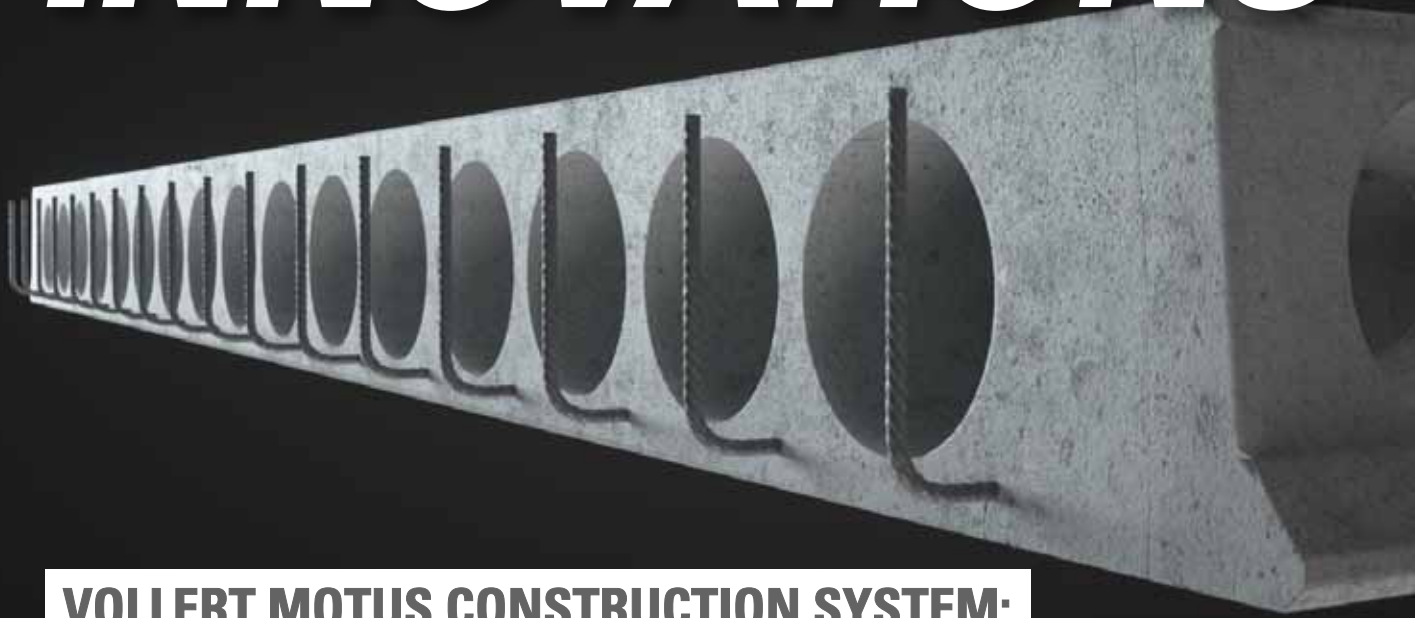


INNOVATIONS



VOLLERT MOTUS CONSTRUCTION SYSTEM: EARTHQUAKE-RESISTANT HOLLOW-CORE SLABS

PRE-STRESSED HOLLOW-CORE SLABS FOR EARTHQUAKE ZONES

Novel manufacturing method enables production of prestressed hollow-core slabs in a circulation system

Hollow-core slabs are up to 40% lighter than solid slabs and require less concrete to manufacture. The hollow-core slab is usually laid without support and can be fully loaded immediately. Grout topping on site is no longer absolutely necessary. For these reasons, it is widely used worldwide.

Previous disadvantages

In the traditional production system, comprising a continuous casting process on long production beds, transverse reinforcements, cross connectors, built-in parts, lifting rings, tensioning steel overhang or concrete recesses cannot be incorporated at all or can only be incorporated with considerable expenditure. Because of this, prestressed hollow-core slabs are often not permitted for construction systems in earthquake zones, or can only be used with restrictions. Also not to be

underestimated are the previous scrap costs due to scrap sections produced in the cutting process.

Hollow-core slabs in a circuit

Vollert's innovative solution takes completely different approach in order to rid the undoubted advantages of the prestressed hollow-core slab from the disadvantages it incurs from its traditional manufacturing process. For the first time, prestressed hollow core slabs are produced on pallets in a circulation system. In this system, each hollow-core slab is produced waste-free to the precise geometry and dimensions of the desired building component.

Tensioning and additional reinforcements, cross connectors, coupling elements, built-in components and recessed placeholders are

easily installed on the pallet. Hollow-core creators are only used temporarily during the concreting process. Truly earthquake-resistant prestressed hollow-core slabs can now be produced for the first time.



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ADVANTAGES AT A GLANCE

EARTHQUAKE-RESISTANT AND FLEXIBLE

- Earthquake-resistant construction system
- Easy installation of transverse reinforcements (e.g. mesh mat) in the lower and upper mirror as well as cross connectors and coupling elements
- Force locking connection of all installation elements
- Easy production of tensioning steel overhang
- Flexible hollow-core geometry or omission of individual hollow-cores for increased shear strength



Structural engineers or TGA planners thus have completely new options than with the conventional prestressed hollow core slabs

PRODUCT DETAILS

DATA & FACTS

- Width as desired, up to approx. 3 m, length up to approx. 12 m, thickness from approx. 12 cm to approx. 26.5 cm
- Prestressing forces for slab widths up to 2.4 m max. 2,500 kN
- Concrete quality (depending mix design) up to approx. 60 MPa
- Fire resistance class up to F120
- Hollow core geometry flexible as desired

REDUCED SCRAP AND LOWER COSTS

- Cutting costs are eliminated, elements made to measure
- No scrap material and residual track, reduced waste of prestressing steel due to prestressing steel coupling elements
- Cement savings through the use of dry concrete
- No wear costs of extruder screws or end pipes

SHORTENED CONSTRUCTION SITE TIMES

- Halving of on-site crane hoists and installation time compared with 1.2 m extruded standard slabs

THE SPANS

Slab thickness cm	Load kN/m ²	Span in m
15	5	6,5
15	9	5
20	5	9
20	9	7
20	13	6
26,5	5	12
26,5	9	11
26,5	13	8,5
26,5	17	7

Guide values for self-supporting spans, to be checked according to local standards and regulations

BUILT-IN PARTS AND MORE

- Easy installation of any built-in parts
- Lifting elements easily attached to the reinforcement: no special lifting/laying clamps are needed
- Easy casting in of various ducts, ceiling recesses, heating or cooling elements and much more

