

# Self-reacting frames for floor slab systems

**Cordeel offers a quality precast concrete service to the civils and building market sectors in eight countries in Europe. To invest in the further development of the company's operations, Cordeel required four prestressing lines from manufacturer of machinery Construx which needed to be multifunctional. At first, the prestressing lines were going to be used for manufacturing floor slabs for the company's CD20 building construction system.**

The beamless and modular CD20 system of the Belgium based construction company and precast manufacturer Cordeel is an all-round precast construction system. It can be used for all types of buildings: commercial, educational, healthcare, industrial, hotels, carparks and residential. The CD20 floor slabs are available in different sizes and allow for integrated ducts. Smart connections make sure the elements can be assembled, disassembled and expanded very quickly, both vertically as horizontally. CD20 buildings can be partially or entirely moved to another destination.

## Flexible and affordable solution

Cordeel insisted in getting a flexible and affordable solution for the prestressing lines. The company did not want to invest too much in foundation works because the prestressing lines

might need to be extended or moved to another facility in the future. To meet this requirement, Construx designed the prestressing lines as self-reacting frames. This means that the frames take all the prestressing forces and no abutments are required. The frames are conceived as a modular setup with a live-end and a dead-end, both approximately 1,5 m long. In between both ends, the frames are assembled with a certain number of modular frame parts. That makes a total of two frames with a net length of 19,5m each and two frames with a net length of 65,3 m each. All four frames are easily extendable. Both short frames allow for 4,800mm wide steel or timber moulds. Both long frames are fully equipped with 4,700 mm wide full steel beds and a hydraulic horseshoe positioning system.

Construx supplied these four multifunctional self-reacting frames to accommodate the CD20 moulds and, future-wise, timber or steel moulds for almost any other type of prestressed floor slab element. The self-reacting frames didn't need any foundation works or special anchors to hold the frames down. All frame parts as well as the live-ends and the dead-ends are held down by means of sliding foot plates, so the entire structure can slightly move back and forth. All foot plates are fixed onto the factory floor by means of mechanical anchors.



*Pouring concrete in timber moulds on one of the 19.5 m long self-reacting frames.*





*Installation of one of the live-ends.*

### No more long-term civil works for installation

This setup allows Cordeel to be extremely versatile and flexible for future projects. With the actual setup, the frames are suitable to manufacture 170 m of prestressed floor slabs per day. Each self-reacting frame has a 500T prestressing capacity. The live-ends are equipped with 2 double-action 250T hydraulic rams with a 250 mm stroke. Per two frames, one hydraulic group with two separate control units operates the rams. The live-ends and the dead-ends are equipped with very thick and solid steel radiator strand divider blocks at which special holder hooks can be fixed at any horizontal position. These hooks can accommodate made to measure



*One of the 65.3 m long self-reacting frames with a full steel bed.*



## Precast Moulds & On-Site Formwork



## Shaping the Future of Concrete

**Hulste (B)**  
**Genk (B)**  
**Roeselare (B)**  
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**Veenendaal (NL)**  
**Bucharest (RO)**

Hazebeekstraat 11  
Hulste, Belgium  
+32 56 72 47 93  
[info@construx.eu](mailto:info@construx.eu)







*Radiator strand blocks with holder hooks and divider plates.*



*Hydraulic group with two separate control units operating the rams.*

laser-cut divider plates with holes at the required vertical positions.

Another great advantage of this type of self-reacting prestressing lines is the speed of installation. From scratch, it didn't even take one week for the Construx technicians to have two complete frames completely installed and commissioned. And up to one week before commissioning, the customer can use the same facility for other purposes. When choosing the abutment type prestressing lines, the installation may easily take more than a couple of months for civil works. These works have to be carried out at both ends (deep excavations and large and heavily reinforced foundations) and in between the abutments (heavy-duty reinforced floor).

As proven above, the future is with the Construx multifunctional self-reacting prestressing lines: no more long-term civil works, no more huge irreversible investments. These self-reacting lines are extremely quick, flexible, versatile and above all good value for money. It is absolutely the most economical way of producing prestressed concrete elements. Construx is an engineering-driven manufacturing company relying on the commitment, creativity and experience of its employees. Their aim is to establish a partnership, rather than to be a supplier, in providing turnkey solutions for precast and on-site formwork issues. ■

## FURTHER INFORMATION



Cordeel Group NV  
Frank Van Dyckelaan 15  
9140 Temse, Belgium  
T +32 3 710 55 00  
[info@cordeel.eu](mailto:info@cordeel.eu)  
[www.cordeel.eu](http://www.cordeel.eu)



# construx

Construx bvba  
Hazebeekstraat 11  
8531 Hulste, Belgium  
T +32 56 72 47 93  
[info@construx.eu](mailto:info@construx.eu)  
[www.construx.eu](http://www.construx.eu)