Reinforced concrete double walls

Build faster, pay less.
The Kerkstoel reinforced double walls consist of two slabs of reinforced concrete joined to each other by lattice girders.

The wall elements are installed on the site according to the plan and then filled with concrete.

The result is a solid construction and a strong base that is virtually a monolithic concrete wall.

Kerkstoel double walls are manufactured in accordance with the strict standards of the Belgian conformity certificate and of ISO 9001, ISO 14001 and OHSAS 18001.

**DIMENSIONS**
- length: up to 8.30 m
- height: up to 2.80 m, possibly up to 3.50 m on request
- thickness (outside/inside): 19-34 cm (on request 40 to 70 cm)
- thickness of the slabs at least 5 cm each
- other dimensions on request

**WEIGHT**
- approx. 250 kg per m² with 2 x 5 cm slab thickness

**CONCRETE QUALITY**
- at least C25-30

**SURFACE**
- suitable for spray plaster or ready to wallpaper on request
Kerkstoel double walls have special advantages for different applications. Because each element is manufactured individually according to requirements, Kerkstoel double walls are the ideal construction method for just about all building work. Below you can find some examples of the many applications.

**Private homes**
Inside and outside walls, the replacement of brickwork, an alternative for concrete poured on-site

**Large construction projects**
Industrial construction, silo walls, tunnels, underground car parks, supporting walls

**Tall walls**
Tall walls with a height above 8 m, can be produced for various uses.

**Storey Floors**
Façade walls, dividing walls in homes, outside walls, lifts and stairwells, partition walls

**Walls as waterproof constructions**
Including basements, water treatment plants, retaining walls and swimming pools
Kerkstoel thinks of all details

CEILING JOINTS

-not reinforced

(reinforced)

(lattice glider)

BASE PLATE JOINTS

-not reinforced

(reinforced)
Kerkstoel offers technical support

We offer just-in-time logistical and qualified assembly assistance for the smooth completion of construction plans.

We draw up a detailed assembly schedule on the basis of the design of the architect (plan and cross-section), the stability calculations, formwork and installation plans. We develop the production plans and provide them with all the necessary details, so that everything goes smoothly and according to schedule on the site.

FOR VERTICAL JOINTS

- (not reinforced)
- (reinforced)

- open web beam

FOR CORNERS

- (not reinforced)
- (reinforced)

- solid wall
- open web beam
- double wall
- casing

FOR WALL JOINTS

- (not reinforced)
- (reinforced)
- (reinforced)

- solid wall
- double wall
- double wall
- casing
What else does Kerkstoel have to offer?

Because each design has its own specific properties, Kerkstoel double walls are uniquely produced according to requirements. Not only does each wall have its own dimensions and openings for doors and windows, the built-in parts for the finishing can also be immediately provided.

The use of the latest CAD and robot techniques allows Kerkstoel to produce double walls of even the most individual design and all this at a very reasonable cost.

Kerkstoel offers technical support

1. Electrical fittings
2. Openings, passageways
3. Pipes for the vertical powering of electrical installations.
4. Door frames, wooden formwork
5. Windows or wooden formwork
6. Reinforcement for joints with concrete poured on-site
2. Openings for: incl. sewers, air-conditioning, ventilation, etc.
3. Conduit for the ease of electrical installation
4. Doorway with formwork. All sizes are possible.
5. Window opening with formwork.
Completely watertight, also at the joints

Kerkstoel double walls are manufactured in optimal and precision-controlled conditions at the factory.

Production faults are practically excluded by using an integrated quality management system.

The double walls resist any water load, water pressure and any other form of moisture to which a building is exposed.

Kerkstoel stands for reliability, and the certainty that all physical construction properties will be taken into account.
Building in groundwater

The bed plate is utilising a water-resistant concrete.

The outside walls can be of a maximum thickness and filled with water-resistant concrete. Kerkstoei’s high quality double wall elements and the concrete guarantee the complete watertightness of the wall.

The joints are either sealed on the outside or given a sealing layer.

VERTICAL JOINTS

INNER SEALING FOR EXAMPLE

JOURT WITH SEALING SECTION

EXTERIOR SEALING

FOR EXAMPLE THICK COATING

HORIZONTAL JOINTS

METHOD FOR GOOD WATER SEALING

ROUGHEN THE AREA OF CONTACT

3 cm

BOTTOM FOUNDATIONS

Always use suitable cement. The water/cement factor must always be less than 0.5

3 cm

BOTTOM FOUNDATIONS

The wall must be placed ±3 cm above the foundations. This means one can increase the contact area.

ROOFING

RESOURCES FOR WATER SEALING

WATER RETAINING PLATE

3 cm

BOTTOM FOUNDATIONS

SWELL STRIP
Transport

Make sure that the crane and the deep-loaders have unimpeded access to the site. Here you must take account of possible street obstructions, the sharpness of bends, parked vehicles, etc.

The transport vehicles have a length up to 18 m; the headroom amounts to at least 4 m.

This form of transport is used for walls higher than 2.80 m. The permissible ground unevenness is a maximum of 25 cm over a length of 6 m.

Vertical transport with carriage

Vertical transport with container is used for walls with a maximum height to 2.80 m.

Vertical transport with container

With horizontal delivery the base surface of the lorries must be level.

Horizontal transport
Preparation of the floor slab

Make sure that the joining reinforcement is placed correctly with the concreting of the slab, ensuring that there is sufficient inside space.

Do not use mesh reinforcement as starter bars. Trace the place where the walls must be erected with the numbers of the walls on the ground. The information can be found on the assembly plan.

Use base plates to accommodate unevenness of the floor. If not otherwise arranged, make sure that the joint under the wall is 3 cm.

Four supports are to be levelled out for each element. (under both surfaces +50 cm from both ends of the wall.)
Unloading of the supplied walls

**Vertical**
Sufficiently long hoisting cables must be used to guarantee an angle of at least 60°. Make sure that the element is always level. Use a pointer.

**Horizontal**
In exceptional cases the walls are transported horizontally.

Upon request we can also provide you with specially designed hoisting hooks with which one lifts the elements horizontally and stacks them horizontally next to the lorry. You must make sure that the ground surface is sufficiently stable and level for this. We advise placing a wooden beam between the hoisting hooks and the concrete elements to spread any concentrated loads. One can then pull the elements vertical with the transport anchors placed at the factory. We also advise to place a wooden beam between the hoisting hooks and the concrete shells.

Always make sure that the chains or cables are sufficiently long to guarantee an angle of 60°.

The maximum weight per hoist anchor is 2 tons.
Placing the walls

- Three operatives are needed for assembly.
- Make sure that with the bringing in of a new element the elements already in position are not displaced or damaged.
- Gradually lower the element and push any protruding holding rods to the side. Place the element in line and up to the adjusting projections. Make sure that the joints are always perpendicular 2 cm. The position can still be corrected with a pry bar to afterwards set the positions with wedges.
- Fix each element with two props on both sides. Screwed sleeves are provided in the walls. The holes needed in the floor slab still have to be drilled.
- The crane hooks may only be removed after the elements have been fixed in place and checked.
- Now apply the joint and corner reinforcement. Do not forget to form the recesses.
Correct concreting

Finish the joints as follows:
- Horizontal joints must be propped up and formed if necessary.
- Vertical joints must be formed if the joint is larger than 1 cm. For this you must use assembly foam.

Reinforce corners using angle bars or wooden planks. Props can be used for T-joints.

You can place the wide slab before the walls are concreted. For this the walls must be assembled in a mortar bed or sufficiently wedged. The inner surface of the walls must be moistened before concreting. Concreting must take place in accordance with the conditions provided. The infill concrete must be properly vibrated.

Important:
- The permissible concrete pressure must not exceed 30 kN/m².
- We advise you to vibrate for 60% of the filling time.
Faster, less expensive and perfect construction

More cost-effectiveness

Because no formwork is needed:
- no rental, storage, investment costs/ depreciations
- no transport, expensive placing, removal or cleaning of the formwork
- less dependent on personnel
- ideal for single-sided formwork or gap construction: a possible take-over stipulation is not required
- greater flexibility

Cost-saving

- insensitive to settling
- less sealing material required
- less transport and crane costs because of less weight
- no mortar bed required for assembly
- no joint problems because of the homogeneous nature of the concrete deposited on-site
- simple connecting of base plate and ceiling with the joint reinforcement in the infill concrete

Shorter construction time

- lower financing costs
- production at the factory independent of weather conditions
- no waiting times for the removal of formwork
- no edge trestle required as support for the wide slabs
- built-in elements such as windows, doors, door frames, cable ducts and electrical boxes can already be built in at the factory
- particularly smooth surface areas on the inside and outside: suitable for spray plaster
- delivered ready to wallpaper on request: no traditional plastering necessary
- just-in-time delivery

Extra benefits

- individual production, geared to each project
- good acoustic insulation
- few limitations as regards static possibilities
- combination of the advantages of concrete poured on-site and prefab-elements
- edge formwork for wide slabs already provided in the wall elements
These assembly instructions are intended as advice. The information is based on current standards and technical approval and our many years of experience. They are however not binding. Our assembly supervisors under no circumstances accept the role and the liability of the authorised supervisor. This also applies for any employees of our company and our suppliers on the building site. Variations in colour and surface with respect to the prospectus material as well as technical and static changes reserved.