SELF-CLIMBING SYSTEMS

High efficiency for highrise construction

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### Features

**Formwork support structure** for the construction of walls and other vertical structures without crane assistance (driven by hydraulic and mechanical mechanisms).

The climbing process consists of the successive elevation of the mast and the climbing bracket-formwork-set along the wall surface.

### Main system components

1. Self-climbing bracket ATR
2. Self-climbing bracket shoe
3. Mast
4. Cylinder
5. Upper climbing head
6. Lower climbing head
7. Support block
8. Anchor bracket
9. Formwork
SELF-CLIMBING SYSTEMS

// Benefits

- **Flexible and versatile** for all requirements in highrise construction.

- **Versatile, thanks to MK system** components: complex wall geometries, platform configurations, closures, optimised formwork configurations, safety, workspaces between wall and formwork, cone recovery.

- **Not dependent on crane assistance**: formwork, working platforms and boom concrete pumps can be simultaneously lifted.

- **Hydraulic climbing**: superior performance compared to conventional climbing with crane. **Very fast construction pace**.

- Operational even in adverse weather conditions.

- **Safe lifting and handling** at height.

- Adaptable to complex wall geometries.

- **Large and protected working platforms**. Safe access.

- **Hydraulic system fully configurable** to construction needs.

- **High load-bearing capacity. Large formwork assemblies can be lifted easily.**
  - Hydraulic power unit operates up to 12 cylinders simultaneously.
  - The working load of each cylinder can be controlled separately.

- **Roll-back system** allows work to be performed between formwork panels.

- Main accessories are shared throughout the entire ATR product range.

- **Compatible with all vertical formwork systems and the MK system.**
ATR-B SELF-CLIMBING BRACKET

Self-climbing bracket configuration.

Formwork panel equipped with roll-back carriages (70 cm) set on the bracket itself.

Includes components to position and plumb the formwork both horizontally and vertically.

Two platforms: a main working platform (2.5 m wide) and a platform for hydraulic system operation. Up to three optional platforms for pouring, material recovery, and other tasks.

Main ATR-B system components

1. ATR-B bracket
2. Main platform
3. Control platform
4. Cone recovery platform
5. Pouring platform
6. Upper intermediate platform
7. ATR roll-back carriage
8. TR push-pull props
9. Formwork

ATR-N NARROW SELF-CLIMBING BRACKET

Used in narrow spaces between walls.

Widths between 1.75 and 2.5 m.

Formwork is hung from a structure above to facilitate stripping, roll-backs, and positioning.

Main ATR-N system components

1. ATR-N narrow bracket
2. Main platform
3. Control platform
4. Cone recovery platform
5. Outrigger structure
6. Adjustable hanging panel
7. Fixed hanging panel
8. Pouring platform
9. Push-pull props
10. Formwork
**ATR-P SELF-CLIMBING PLATFORM**

Platforms used in large spaces when required for reasons of size, loads, or shape.

Structure based on MK system. Adjustable to fit different geometries and formwork roll-back systems (carriages or outrigger structures).

**ATR self-climbing system lifting sequence**

1. Pouring
2. Stripping
3. Placing of anchors
   - Mast elevation
   - Lower anchor recovery
4. Structure elevation

Allows for the installation of boom pump support structures.
// Solutions

- **Complex geometries:** based on the MK system, it easily adapts to the building geometries. Customised access, working and storage areas can be configured. They cover the entire perimeter and provide completely safe working areas.

- **High capacity self-climbing structures for interior shafts:** enables the simultaneous construction of slabs and walls thus reducing material and avoiding the otherwise required connection.

- **Building irregularly-shaped cores**

- **Lifting auxiliary elements such as boom concrete pumps or small cranes**

- **Exterior formwork and platforms hung from the MK structure above**

- **Adaptable to construction methods for slabs and walls**
Self-climbing systems

- ATR system used in pier construction
- Exterior and interior formwork free from interferences above
- Guaranteed safety on all working levels
- ATR used in inclined pylon construction
RKS Rail Climbing System

// Features

It enables the climbing of the panel without separating the structure from the wall.

Ensures safe lifting operations in any weather conditions. Hydraulic lifting system for formwork assemblies, with crane lifting optional.

Single lower platform for anchor recovery.

Adjustable to different pouring heights, with a standard range from 2.7 to 5 m.

Hydraulic cylinder lifting capacity: 50 kN.

// Main system components

1. Formwork
2. Additional profile RKS
3. Wall bracket LT HWS
4. Head LT HWS
5. Mast shoe RKS

1. Vertical waler
2. Mast
3. Initial pushing mast RKS
4. Climbing head HWS
5. Cylinder HWS
6. Roll-back carriage MK-120
7. Hydraulic power unit HWS
// Benefits

- Configuration optimised to obtain high levels of efficiency on-site.
- Single-point rail anchors.
- Safe climbing at height ensured by rails attached to wall.
- Versatile and adaptable (based on MK system).
- Large and secure platforms, with customisable configurations.
- Lifting without crane assistance.
- Climbing assemblies lifted with a single hydraulic unit and two portable cylinders.
- Lifting under adverse weather conditions.

// Solutions

- Inner cores construction.
  Inexpensive system for cores construction without requiring a crane and protecting the workers against the inclemency of the weather.
- Construction of buildings with perimeter walls.
  Large formwork areas with guaranteed safety and high performance rates.
- Construction of partial walls in combination with the HWS Hydraulic Windshield.

Complete enclosure of the building perimeter for safe formwork solutions in wall areas or columns at the slab edge.

- Curved walls.

- Great versatility, different types of solutions depending on features of the system.
HWS Hydraulic Windshield System

Features

Safety component for highrise building perimeters. Covers the floor under construction and the floors immediately below.

Based on MK system (standard walers with simple connecting elements). Adaptable to different geometries and configurations according to requirements.

Main system components

1. Protection screen with different enclosures
2. Hydraulic power unit
3. Mast
4. Slab bracket LT HWS
5. Head LT HWS
6. Cylinder HWS
7. Climbing Head HWS
Benefits

- **Prevents falls** from the slab edge.
- Excellent **protection against inclement weather**.
- Protects against workers experiencing fear of heights.
- **Flexibility** of the MK system.
- **Configurable cross-section**: working platform levels, dimensions, material unloading platforms and type of protective sheathing.
- **Adaptable protective sheathing** (opaque or semi-transparent, stiff or elastic, etc.).
- Allows for the use of **exterior material lifting platforms**.
- **Provides access** between the final storeys of the building.
- **Platform for work** on the slab edge.
- **Hydraulic self-climbing system** operates without crane assistance.
- Can be anchored to slab or wall.
- **Adapts well to the geometry of irregular slabs**.
- Completely encloses the entire perimeter.
- **Accessories shared with other MK solutions**.

**Anchorage of HWS to slab or wall:**

1. **Slab anchor system**

2. **Wall anchor system**
Solutions

- HWS with material storage and lifting platforms at different levels, and working platform.

- Basic cross-section with platform for material unloading.

- Debris section: slab extension for use as perimeter working platform and material storage area. Prevents debris from falling during formwork table removal and provides a large advertising area directed toward the street below.

- Straight cross-section.

- Access stairways in HWS protection.

- HWS with working platform.
<table>
<thead>
<tr>
<th>Component</th>
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<th>Weight (kg)</th>
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<tbody>
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<td>Roll-back carriage ATR</td>
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<td>Walers MK-120 (from 1.125 m to 5.875 m)</td>
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<td>Profiles MK-180 (from 0.5 m to 10.625 m)</td>
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