SELF-CLIMBING SYSTEMS

// High efficiency for high-rise construction

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**Features**

**Formwork support structure** for the construction of walls and other vertical structures without crane (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
System benefits

- **Flexible and versatile** for all types of requirements in the construction of high-rise buildings.

- **Easy to adapt** due to MK System components: complex wall geometries, platform configurations, closures, optimised formwork configurations, safety, workspaces between wall and formwork, cone recovery.

- **Almost completely crane-independent**: formwork, working platforms and concrete placing boom can be simultaneously lifted.

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

- Operational even **under adverse weather conditions**.

- **Safety in lifting and handling** at great heights.

- Adaptable to complex wall geometries.

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

- **High load capacity**.

- **Hydraulic system configurable** to requirements.

- The working load of each cylinder can be controlled separately.

- **Hydraulic power unit** operates up to 12 cylinders simultaneously. Large formwork sets can be easily lifted.

- **Climbing brackets are anchored to the wall with cones embedded** in the concrete (absorption of horizontal and vertical loads).

- **Roll-back carriages** for works between formwork panels.

- Main accessories are common throughout the ATR product range.

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

Self-climbing bracket configuration.

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

Components for the horizontal and vertical plumbing and positioning of the formwork.

Two platforms: main working platform (2.5 m width) and control platform for the operation of the hydraulic system; three optional platforms for pouring, items recovery and other tasks.

Main ATR-B system components

1. Self-Climbing Bracket ATR-B
2. Main platform
3. Control platform
4. Cone recovery platform
5. Pouring platform
6. Upper intermediate platform
7. Roll-Back Carriage ATR
8. Push-Pull Props TR
9. Formwork

SELF-CLIMBING NARROW BRACKET ATR-N

Used in narrow shafts between walls.

Widths between 1.75 and 2.5 m where the ATR-B bracket cannot be used.

Formwork hanging from upper structure for stripping, panel backward moving and positioning works.

Main ATR-N system components

1. Self-Climbing Narrow Bracket ATR-N
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
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SELF-CLIMBING PLATFORM ATR-P

Platforms used in shafts where for reasons of dimensions, loads or geometry, a platform system performs better than self-climbing brackets.

Structure based on MK System. It can adjust to different geometries and be fitted with different formwork stripping systems (carriages or outrigger structures). Structures for the support of auxiliary elements such as concrete placing booms and small cranes can be assembled to this system.

Lifting sequence of the ATR self-climbing system

1. Pouring
2. Stripping
3. Placing of anchors
   - Mast elevation
   - Lower anchor recovery
4. Structure elevation
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 shaft self-climbing structures:** enables the simultaneous construction of slabs and walls thus reducing material and avoiding the otherwise required connection.
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- Large working platform and storage areas

- ATR System in pier construction.

- Elevation of auxiliary elements such as a concrete placing boom or small cranes
RKS Rail Climbing System

Features

It enables the climbing of the panel without separating the structure from the wall. Safe lifting operations under any weather conditions.

Hydraulic lifting of the entire structure and optional crane lifting.

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

Working load of the hydraulic cylinder: 50 kN.

Main system components

1 Main platform
2 Control platform
3 Pouring platform
4 Cone recovery platform
5 Mast
6 Head HWS
7 Climbing Head HWS
8 Cylinder
9 Hydraulic Power Unit HWS
10 Roll-Back Carriage
11 Vertical Waler
12 Formwork
System benefits

- **Safe climbing** to great heights, guided climbing along the wall.
- **Versatile and adjustable** (based on the MK System).
- **Large and safe platforms**, customised configurations possible.
- Formwork stripping distance: 70 cm.

- **Hydraulic lifting**, without crane.
- Lifting of all platforms with a single hydraulic power unit and two cylinders.
- Lifting under **adverse weather conditions**.
- Optimised for straight constructions or with repetitive geometries.

Solutions

- **Inner shaft construction.**
  Inexpensive system for shaft 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.
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- 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.

- Successive structure climbing with mobile hydraulic system.

- Formwork and stripping system on RKS.
**HWS** Hydraulic Windshield System

### Features

**Safety item for the perimeter** of buildings at great height.

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. Working platform / material unloading / storage
3. Mast
4. Slab Bracket HWS
5. Head HWS
6. Cylinder HWS
7. Climbing Head HWS
System benefits

- **Prevents falls** from the slab edge.
- Excellent **protection against the inclemency of the weather**.
- Reduces the visual height effect.
- **Flexibility** of the MK System.
- **Configurable section**: working platform levels, dimensions, material unloading platforms and type of protective sheathing.
- **Selection of protective sheathing** (opaque or semi-transparent, stiff or elastic, etc.).
- **Material lifting platforms** can be part of the windshield panels.
- **Provides access** between the last floors of the building.
- Platform for works **at the slab edge**.
- **Hydraulic self-climbing elevation**, without crane.
- **Can be anchored to slab or wall**.
- **Adapts well to the geometry of irregular slabs**, including geometries varying in height.
- Encloses the entire perimeter without leaving any gaps.
- Provides large vertical surfaces for **promotional messages**.
- Common accessories with other MK solutions.

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

1.- Anchoring system in slab

2.- Anchoring system on slab edge

3.- Anchoring system in wall
Configuration examples

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

- **Basic section with platform** for material unloading.

- **Debris section**: extension of the slab as perimeter working and material storage platform. It avoids falling debris when removing formwork tables and provides a large advertising area towards the street.

- **Access ladder** in HWS.

- HWS lifted by crane.
<table>
<thead>
<tr>
<th>Component</th>
<th>Code</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATR-B Bracket</td>
<td>0335240</td>
<td>380</td>
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<tr>
<td>Roll-back carriage ATR</td>
<td>0335066</td>
<td>65</td>
</tr>
<tr>
<td>Roll-back rack</td>
<td>0335048</td>
<td>7.3</td>
</tr>
<tr>
<td>Gear device</td>
<td>0335126</td>
<td>5.7</td>
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<tr>
<td>Gear device handle</td>
<td>0335166</td>
<td>0.74</td>
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<tr>
<td>ATR-N Narrow bracket</td>
<td>0335245</td>
<td>263</td>
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<tr>
<td>Self-climbing bracket shoe NV</td>
<td>0335130</td>
<td>61</td>
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<tr>
<td>Telescopic head ATR-P</td>
<td>0336000</td>
<td>218</td>
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<tr>
<td>Beam DU-240 ATR-P</td>
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<tr>
<td>Upper climbing head NV</td>
<td>0338002</td>
<td>31.2</td>
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<td>Lower climbing head NV</td>
<td>0338071</td>
<td>28.8</td>
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<td>Anchor bracket NC</td>
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<td>21</td>
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<tr>
<td>Double anchor bracket</td>
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<tr>
<td>Double cone NC wall anchor</td>
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<tr>
<td>Double cone NC positioner</td>
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<tr>
<td>Cylinder ATR 100kN</td>
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<tr>
<td>Cylinder ATR 100kN signal</td>
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<tr>
<td>6P, 4P y 2P hydraulic power unit</td>
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</tbody>
</table>
### Basic components RKS / HWS

<table>
<thead>
<tr>
<th>Component</th>
<th>Code</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common</strong></td>
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</tr>
<tr>
<td>Head HWS</td>
<td>1991100</td>
<td>26.1</td>
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<tr>
<td>Self-climbing block HWS</td>
<td>1991370</td>
<td>4.1</td>
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<tr>
<td>Climbing head HWS</td>
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<td>13.6</td>
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<tr>
<td>Cylinder HWS</td>
<td>1991350</td>
<td>36</td>
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<tr>
<td>Hydraulic power unit HWS</td>
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<td>130</td>
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<tr>
<td><strong>Walers</strong> MK-120 (from 1.125 m to 6.625 m)</td>
<td>1991260</td>
<td>13</td>
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<tr>
<td><strong>Profiles</strong> MK-180 (from 0.5 m to 6.625 m)</td>
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<tr>
<td><strong>Push pull prop E</strong></td>
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<tr>
<td><strong>Spacer tube</strong> MK-120/52</td>
<td>1990200</td>
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<tr>
<td>Bolt M16 x 90 DIN-931-8.8</td>
<td>0241690</td>
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<tr>
<td>Nut M16 DIN-934-8.8</td>
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<td>0.03</td>
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<tr>
<td><strong>RKS</strong></td>
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</tr>
<tr>
<td>Wall bracket HWS</td>
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<td>Additional profile RKS</td>
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<tr>
<td><strong>Swingings shoe RKS</strong></td>
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<td>10.8</td>
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<tr>
<td><strong>Slab-end bracket HWS</strong></td>
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<td><strong>Slab bracket HWS</strong></td>
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<tr>
<td><strong>Hook-slab bracket HWS</strong></td>
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<td>1.8</td>
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</tbody>
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**Note:** The above table lists the basic components of the self-climbing systems, with their respective codes and weights. The images correspond to the components listed in the table.
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