## CRANE SPECIFICATION

### Performance
- **Maximum rated lifting capacity:**
  - 10 metric tons \( \times \) 2.5m
- **Boom length:** 5.5m \(-\) 23.5m (6 section)
- **Fly jib length (OPTION):** 2.5m (1 section, offset, 15\(^\circ\), 30\(^\circ\), and 45\(^\circ\) optional) (Deck stowed, detachable fly jib)
- **Maximum lifting height:**
  - Boom: 24.5m (23.5m Boom)
  - Jib: 29.7m (23.5m Boom + 2.5m fly jib offset 15\(^\circ\))
- **Boom derricking angle:** 9 \(-\) 81\(^\circ\)
- **Boom derricking time:** 30 SEC. \(-\) 9 \(-\) 81\(^\circ\)
- **Boom extending time:** 56SEC. (5.5m \(-\) 23.5m)
- **Hoisting line speed (winch up):**
  - Main winch: 112m/min. (at 4th layer)
  - Auxiliary winch: 104m/min. (at 3rd layer)
- **Hoisting hook speed (Winch up):**
  - Main winch (parts of line; 8): 14m/min. (at 4th layer)
  - Auxiliary winch (parts of line; 1): 104m/min. (at 3rd layer)
- **Slowing speed:** 2.2min\(^{-1}\)

### Hoisting Ropes
- **Main winch:**
  - Diameter: 10mm
  - Length: 130m
- **Auxiliary winch:**
  - Diameter: 10mm
  - Length: 55m

### Hydraulic System
- **Oil pump:** 4 pumps, plunger and gear type
- **Hoisting motor:** Axial plunger type
- **Swing motor:** Axial plunger type
- **Cylinder:** Double acting type
- **Control valve:** Double acting with integral check and relief valves
- **Oil reservoir capacity:** 150lit

### Winch System
- **Main winch & Auxiliary winch:**
  - Driven by axial plunger type hoisting motor with gear reduction, controlled independently by respective operating lever.
  - Equipped with automatic brake.

### Safety devices
- **Safe load indicator:**
  - KATO ACS (Automatic Crane Stopper) Included.
- **Safe level indicator lamps**
- **Actual load digital display**
- **Rated lifting capacity digital display**
- **Trouble warning lamp**
- **Boom operation status display**
- **Fly jib offset angle display**
- **Outrigger setting status display**
- **Swing area display**
- **Winch drum indicator**
- **Boom falling prevention device**
- **Winch drum lowering limiter**
- **Automatic winch brake**
- **Irregular winding prevention device**
- **Hydraulic safety valve**
- **Control pedal lock device for Main winch operation**
- **Control pedal lock device for Aux. winch operation**
- **Mechanical slewing lock**
- **Mechanical slewing brake**
  - 2.5m Fly jib (Deck stowed, detachable fly jib)
  - Amplifier
  - English voice alarm of ACS.

## CARRIER SPECIFICATION

### General dimensions & G.V.W.
- **Overall length:** 7430mm
- **Overall width:** 1955mm
- **Overall height:** 2635mm
- **Wheel base:** 2750mm
- **Treads; Front & Rear:** 1680mm
- **Center to center of extended outriggers:**
  - 4500mm (Fully extended)
  - 3250mm (Intermediate extended)
  - 1640mm (Blocked on vertical cylinders)
- **Gross vehicle weight:**
  - Front 6350kg
  - Rear 6350kg

### Carrier
- **Drive system:** 4 \( \times \) 2/4 \( \times \) 4
- **Maximum traveling speed:** 49km/h
- **Gradeability (\( \tan \theta \)):** 0% (computed @G.V.W. = 12,900kg)
- **Minimum turning radius:** 3.32m (4 wheel steer)
  - (center of extreme outer tire) 0.5m (2 wheel steer)
- **Engine:**
  - Maker: Hino Motors, Ltd.
  - Model: EA-W04C-IV
  - Type: 4 cylinder, 4 stroke, water cooled, direct injection, turbocharged diesel engine with intercooling
  - No. of cylinder: 4
  - Piston displacement: 3839cc
  - Max. output horsepower: 118kw/3000min\(^{-1}\)
  - Max. output torque: 471nm/1,600min\(^{-1}\)
  - NOTE: The engine emission is in accordance with 97/68/EC.
- **Torque converter:** Engine mounted 3 elements
  - 1 stage (with lock up clutch)
- **Transmission:** Remote mounted full automatic with transfer gear box 4 forward & 1 reverse speed (with Hi-Low selector)
- **Axle:**
  - Front & Rear: Planetary, drive/steer type
  - Suspension: Front & Rear: Taper-leaf spring
- **Steering:**
  - Full hydraulic power steering
  - Completely independent front and rear steering
  - (with automatic rear wheel steering lock system)
- **Brake:**
  - Service brake:
    - Air-over hydraulic disk brake on front wheels
    - Air-over hydraulic drum brake on rear wheels (2 circuit)
  - Equipped with service brake lock
  - Parking brake:
    - Spring applied, electrically air released
    - Parking brake mounted on rear wheels, internal expanding type
- **Auxiliary brake:**
  - Exhaust brake
- **Electric system:** 24V
- **Alternator:** 24V \(-\) 45A
- **Battery:** 12V \(-\) 950Ah \( \times \) 2
- **Fuel tank capacity:** 250lit
- **Driver's cab:**
  - All steel welded construction, 1 person, Air-conditioner (OPTION)
- **Tyre size:** Front & Rear: 12R22.5 145/145
- **Safety devices:**
  - Emergency steering device
  - Brake fluid leak warning device
  - Seat belt
  - Service brake lock
  - Engine overrun alarm
  - Over-shift prevention device
  - Radiator coolant leakage warning device
  - Motor driven retractable side mirrors
  - Mirror heater
  - Low air warning device
  - Over speed warning
### RATED LIFTING CAPACITY(1)

Based on *ISO 4305*  *BS 1757:1986*  *DIN 15019-2*

<table>
<thead>
<tr>
<th>Working radius (m)</th>
<th>Outriggers fully extended (4.5m) 360° full range</th>
<th>Outriggers immediately extended (3.2m) 360° full range</th>
<th>Outriggers completely retracted (blocked on vertical booms) 360° full range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.5m Boom</td>
<td>9.1m Boom</td>
<td>12.7m Boom</td>
</tr>
<tr>
<td>1.5</td>
<td>1.00</td>
<td>5.00</td>
<td>5.00</td>
</tr>
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</tr>
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<td>3.0</td>
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<td>6.5</td>
<td>3.15</td>
<td>3.05</td>
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<td>2.50</td>
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<td>2.30</td>
<td>2.20</td>
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<td>0.20</td>
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<tr>
<td>8.5</td>
<td>0.10</td>
<td>0.05</td>
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</table>

### RATED LIFTING CAPACITY(2)

Based on *ISO 4305*  *BS 1757:1986*  *DIN 15019-2*

<table>
<thead>
<tr>
<th>23.6m Boom + 2.5m Jib</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Room angle (°)</th>
<th>Offsets</th>
<th>Working radius (m)</th>
<th>Load (t)</th>
<th>Working radius (m)</th>
<th>Load (t)</th>
<th>Working radius (m)</th>
<th>Load (t)</th>
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</thead>
<tbody>
<tr>
<td>87</td>
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<tr>
<td>77.5</td>
<td>30</td>
<td>5.7</td>
<td>1.20</td>
<td>6.2</td>
<td>1.00</td>
<td>6.5</td>
<td>0.80</td>
</tr>
<tr>
<td>73</td>
<td>45</td>
<td>7.7</td>
<td>1.20</td>
<td>8.2</td>
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<tr>
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<td>0.70</td>
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<td>45</td>
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<td>0.80</td>
<td>13.3</td>
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<td>0.68</td>
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<tr>
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<td>14.8</td>
<td>0.70</td>
<td>15.1</td>
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<td>17.6</td>
<td>0.58</td>
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<tr>
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<td>22.7</td>
<td>0.20</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Standard hook for 1.4 ton**

- **Part of line:** 1
- **Critical boom angle:** 49°
- **Hook mass:** 25kg
- **Parts of line:** 1

**Critical boom angle:** 15°  30°  45°
### RATED LIFTING CAPACITY (3)

Based on: ISO 4305 * BS 1757:1986 * DIN 15019-2

<table>
<thead>
<tr>
<th>Without outriggers</th>
<th>Working radius (m)</th>
<th>Over front</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.5m Boom</td>
<td>9.1m Boom</td>
</tr>
<tr>
<td>2.0</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>1.00</td>
<td>0.60</td>
</tr>
<tr>
<td>7.5</td>
<td>1.00</td>
<td>0.60</td>
</tr>
<tr>
<td>Standard hook</td>
<td>for 10 ton</td>
<td></td>
</tr>
<tr>
<td>Hook mass</td>
<td>90 kg</td>
<td></td>
</tr>
<tr>
<td>Parts of line</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Critical boom angle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Unit: Metric ton)

### Notes for the Rated Lifting Capacity Chart

**Rated lifting capacity charts (1) and (2)**

**When outriggers are used.**

1. The rated lifting capacity chart indicates the maximum load which can be lifted by this crane provided it is level and standing on firm, level ground. It includes the mass of the hook and all other slings etc. The area of the rated lifting capacity chart surrounded by a thick black line is the area in which capacity is determined by the structural strength of the crane. Elsewhere the crane's stability is the deciding factor.

2. The working radius is based on the actual radius including boom and jib deflection. Always use the actual working radius as the standard criterion for crane operation.

3. The jib working radius is based on the jib mounted on the end of the 23.5m boom. If the boom is at any other length use the boom angle alone as the standard criterion for crane operation. (The jib is optional.)

4. Never operate the jib when the outriggers are fully retracted. (The jib is optional.)

5. The rated lifting capacity of the rooster sheave is the rated lifting capacity of the boom minus the mass of all attached slings etc. to the boom, with an upper limit of 1,400kg. (The hook for use with the rooster sheave is the 1.4 ton hook (mass 25kg) with one part of line.)

6. If the boom length exceeds the rated length use the rated lifting capacity for the rated length or for the next highest boom length step, whichever gives the smaller rated lifting capacity.

7. If you are working with the boom while the jib is rigged subtract 120kg from the rated lifting capacity as well as subtracting the mass of the slings etc. Do not use the rooster sheave in this situation. (The jib is optional.)

8. In whatever working conditions the corresponding boom critical angle is shown in the table. Lowering the boom below the critical angle could cause the machine to tip over even if the crane is not carrying any added load.

9. The standard parts of line for each boom length are as shown in the table. If you work with a non-standard number of parts of line take 1,300kg as the maximum load on any part of the wire rope.

10. Crane operation is permissible up to a wind speed of 10m/s. Even in relatively light wind conditions, extra care should be taken when handling loads presenting large wind catching areas.

11. Kato bears no liability whatsoever for damage, crane tipping or other accident caused by misuse of the crane, exceeding the rated lifting capacity or differing from the directions contained in the instruction manual and the warning labels.

**Rated lifting capacity charts (3)**

**When outriggers are not used.**

1. The rated lifting capacity chart indicates the maximum load which can be lifted by this crane provided it is standing on firm, level ground with all tyres inflated to the rated pressure. It includes the mass of the hook and all other slings etc.

2. Operation over side is not permitted. Operate this machine only over front with the slewing lock pin inserted.

3. Do not work with the jib or with a boom length of more than 9.1m. (The jib is optional.)

4. Never derrick the boom above 60°, which can cause a dangerous result.

5. Always engage the parking brake before you start stationary crane-on-rubber operation.

6. For pick and carry operation the high/low speed switch must be switched to "ON" (low range) and the shift lever set to speed 1.

7. For pick and carry operation lower the load to just above the ground and keep your speed strictly less than 2km/h to avoid swinging the load. Take particular care to avoid sharp cornering and sudden starts and stops.

8. Never operate the crane during pick and carry operation. The slewing brake must always be engaged with the slewing lock pin inserted.

9. Other than the above precautions observe points (2), (5), (6), (8), (9), (10) and (11) of the section "Precautions on outrigger use".
WORKING RANGE

Radius from slewing center (m)

Note: This diagram does not include deflection of Boom and Fly Jib.
Minimum Road Width for Right-Angle Turn

**Right turn in two-wheel steering mode**

- \( R_s = 6.50\)m (Minimum turning radius)
- \( R_t = 6.00\)m (Turning radius of extremely outer tyre)
- \( R_b = 7.12\)m (Chassis turning radius)
- \( R_p = 7.76\)m (Boom end turning radius)
- \( R_i = 3.88\)m (Turning radius extremely chassis inner)

**Right turn in 4-wheel steering mode**

- \( R_s = 3.92\)m (Minimum turning radius)
- \( R_t = 4.02\)m (Turning radius of extremely outer tyre)
- \( R_b = 4.55\)m (Chassis turning radius)
- \( R_p = 5.38\)m (Boom end turning radius)
- \( R_i = 1.60\)m (Turning radius extremely chassis inner)

\[ A = 3.53\text{m (Width of entrance)} \]
\[ B = 3.50\text{m (Width of wheel exit)} \]
\[ C = 4.15\text{m (Width of chassis exit)} \]
\[ D = 4.79\text{m (Width of exit at end of boom)} \]

\[ A_w = 3.45\text{m (Width of entrance)} \]
\[ A_i = 2.80\text{m (Width of wheel entrance)} \]
\[ B = 2.79\text{m (Width of wheel exit)} \]
\[ C = 3.34\text{m (Width of chassis exit)} \]
\[ D = 4.01\text{m (Width of exit at end of boom)} \]

Note: The above values are based on calculations.