KATO

# NK-550VR

## FULLY HYDRAULIC TRUCK CRANE

## 【SPECIFICATION】

### ■CRANE

| | | |
|---|---|---|
| Description | | Truck crane with maximum lifting capacity 55 ton |
| Model | | NK-550VR |

#### ●Specification

| | | | |
|---|---|---|---|
| Maximum rated lifting capacity | 11.0 m Boom | 55,000 kg × 3.0 m | (Parts of line : 14) |
| | 11.0 m Boom | 40,000 kg × 3.5 m | (Parts of line : 10) |
| | 15.0 m Boom | 28,000 kg × 5.0 m | (Parts of line : 8) |
| | 19.0 m Boom | 28,000 kg × 5.0 m | (Parts of line : 8) |
| | 23.0 m Boom | 24,000 kg × 6.0 m | (Parts of line : 6) |
| | 27.0 m Boom | 20,000 kg × 6.5 m | (Parts of line : 5) |
| | 35.0 m Boom | 14,000 kg × 8.0 m | (Parts of line : 4) |
| | 43.0 m Boom | 8,000 kg × 10.0 m | (Parts of line : 4) |
| | 9.2 m Jib | 3,500 kg × 80° | (Parts of line : 1) |
| | 15.0 m Jib | 2,500 kg × 80° | (Parts of line : 1) |
| | Rooster | 4,000 kg | (Parts of line : 1) |

| | | |
|---|---|---|
| Boom length | | 11.0 m — 43.0 m |
| Fly jib length | | 9.2 m, 15.0 m |
| Maximum lifting height | | 43.0 m (Boom) |
| | | 58.0 m (Jib) |
| Hoisting line speed | Main winch | 114 m/min. (at 3rd layer) |
| | Auxiliary winch | 105 m/min. (at 2nd layer) |
| Hoisting hook speed | Main winch | (part of line; 14) : 8.1 m/min. (at 3rd layer) |
| | Auxiliary winch | (part of line; 1) : 105 m/min. (at 2nd layer) |
| Boom derricking angle | | -2.5° — 81° |
| Boom derricking time | | 70 sec. (-2.5° — 81° ) |
| Boom extending time | | 170 sec. (11.0 m — 43.0 m) |
| Slewing speed | | 1.85 $min^{-1}$ |
| Tail slewing radius | | 3,480 mm |

#### ●Equipment and structure

| | | |
|---|---|---|
| Boom type | | Box-shaped, 5-section hydraulically telescopic type (boom sections 2/3 and 4/5 simultaneously operated) |
| Jib type | | 2 sections (2nd section of draw-out type, 3-step inclination type (offset angles 5° , 25° and 45° )) |
| Boom extension/ retraction equipment | | Three hydraulic cylinders and wire ropes used together |
| Boom derricking/ lowering equipment | | One hydraulic cylinder of direct acting type with pressure-compensated flow control valve |
| Winch system Main & Auxiliary winches | | Driven by axial plunger type hoisting motor through planetary gear reduction. Controlled independently by operating lever. Equipped with automatic brake. |
| Slewing equipment | | Ball bearing type |
| Wire rope for hoisting | Main winch | Diameter : 18 mm × Length : 235 m |
| | Auxiliary winch | Diameter : 18 mm × Length : 125 m |

#### ●Hydraulic equipment

| | | |
|---|---|---|
| Oil pump | | 4 section gear type |
| Hydraulic motor | Hoisting motor | Axial plunger type |
| | Slewing motor | Axial plunger type |
| Control valve | | 3 position 4 way double acting with integral check and relief valves |
| Cylinder | | Double acting type |
| Oil reservoir capacity | | 695 L |

#### ●Safety devices

| | |
|---|---|
| | ACS (Automatic crane stopper), Boom falling prevention device, Winch hoisting limiter, Winch drum lock device, Winch drum turning indicator, Automatic winch brake, Irregular winding prevention device, Hydraulic safety valve, Outrigger lock device, Joystick control safety stop system, Slewing lock device |

#### ●Standard equipment

| | |
|---|---|
| | Front jack, Fly jib, Rooster sheave, Independent two winches control system, Irregular winding prevention device,Winch automatic brake,Sub hook sheave for 55t, Hooks (40 ton, 20 ton, 4 ton), Hydraulic oil cooler, Full size fender, Large size steps, 3 working lights, Moment limiter with voice alarm, Winch drum turning indicator, Sun visor, Cigar lighter, Ashtray, Cab floor mat, Tool kit |

#### ●Optional equipment

| | |
|---|---|
| | Winch over-unwinding device, Winch drum mirror (hoist mirror), Yellow rev. light, Cab heater, Cab cooler, Fan, Radio AM FM, Fire extinguisher, Roof visor |

### ■CARRIER

| | | |
|---|---|---|
| Maker and model | | FAW CA5420JQZ |

#### ●Specification

| | | |
|---|---|---|
| Maximum traveling speed | | 71 km/h |
| Gradeability | | 63% (theoretical value) |
| Minimum turning radius | | 11.75 m |

#### ●General dimensions & G.V.W.

| | | |
|---|---|---|
| Overall length | | approx.13,370 mm |
| Overall width | | approx. 2,800 mm |
| Overall height | | approx. 3,780 mm |
| Wheel base | | 1,450 mm + 3,900 mm + 1,350 mm = 6,700 mm |
| Treads | Front | 2,282 mm |
| | Rear | 2,059 mm |
| Outriggers | Type | Hydraulic H-beam type (with float and vertical cylinder in single unit) |
| | Extension width | 7,000 mm (Fully extended) |
| | | 4,800 mm (Intermediately extended) |
| | | 2,500 mm (Fully retracted) |
| Gross machine weight | Gross weight | approx. 41,600 kg |
| | Front weight | approx. 15,650 kg |
| | Rear weight | approx. 25,950 kg |

#### ●Engine

| | | |
|---|---|---|
| Model | | CA6DL2-35 (EURO-Ⅱ) (turbo charged) |
| Type | | 6-inline, 4 cycle, direct injection water cooled, diesel |
| Piston displacement | | 8.6 L |
| Max. power | | 258 kW/ 2,100 $min^{-1}$ (350 PS/ 2,100 $min^{-1}$) |
| Max. torque | | 1,475 N･m/ 1,450 $min^{-1}$ (150 kg･m/ 1,450 $min^{-1}$) |

#### ●Equipment and structure

| | | |
|---|---|---|
| Drive system | | 8 × 4 |
| Clutch | | Single dry plate, hydraulic control with air booster |
| Transmission | | Manual transmission type |
| Number of speeds | | 9 forward & 1 reverse speed |
| Axles | Front | Reverse "ELLIOT" type |
| | Rear | Full floating type with hub reduction |
| Suspension | Front | Leaf springs with shock absorber |
| | Rear | Equalizer beams & torque rods with leaf springs (with lockout device) |
| Brake | Service | 2 circuit air brake, 8 wheels internal expanding type |
| | Parking | Spring loaded brake |
| | Auxiliary | Exhaust brake |
| Steering | Type | Ball nut type with power booster |
| Tire size | Front | 315 / 80R 22.5 |
| | Rear | 315 / 80R 22.5 |
| Fuel tank capacity | | 380 L |
| Seating capacity | | 2 persons |
| Battery | | (12V-6-QAW-180) × 2 |

#### ●Standard equipment

| | |
|---|---|
| | Towing hook (front and rear, eye type), Spare tire & wheel, Air dryer, Radio AM FM with cassette deck, Cigar lighter, Ashtray, Cab heater, Cab cooler |

- ●Stow the hooks in place before traveling.
- ●Before you use this machine, read the precautions in the instruction manual thoroughly to operate it correctly.
- ●KATO products and specifications are subject to improvements and changes without notice.

## ■RATED LIFTING CAPACITY

Based on ISO 4305

# 11.0 m — 43.0 m Boom

(Unit : Metric ton)

| Outriggers fully extended with front jack − 360° full range<br>Outriggers fully extended without front jack − over side and over rear | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Working radius (m) | 11.0m Boom | 11.0m Boom | 15.0m Boom | 19.0m Boom | 23.0m Boom | 27.0m Boom | 35.0m Boom | 43.0m Boom |
| 3.0 | 55.00 | 40.00 | 28.00 | 28.00 | 24.00 | | | |
| 3.5 | 43.70 | 40.00 | 28.00 | 28.00 | 24.00 | | | |
| 4.0 | 38.50 | 38.50 | 28.00 | 28.00 | 24.00 | 20.00 | | |
| 4.5 | 34.20 | 34.20 | 28.00 | 28.00 | 24.00 | 20.00 | | |
| 5.0 | 30.80 | 30.80 | 28.00 | 28.00 | 24.00 | 20.00 | | |
| 5.5 | 27.80 | 27.80 | 27.40 | 27.20 | 24.00 | 20.00 | 14.00 | |
| 6.0 | 25.40 | 25.40 | 25.00 | 24.80 | 24.00 | 20.00 | 14.00 | |
| 6.5 | 23.20 | 23.20 | 22.80 | 22.60 | 22.50 | 20.00 | 14.00 | 8.00 |
| 7.0 | 21.40 | 21.40 | 21.00 | 20.80 | 20.60 | 19.60 | 14.00 | 8.00 |
| 7.5 | 19.70 | 19.70 | 19.30 | 19.10 | 19.00 | 18.00 | 14.00 | 8.00 |
| 8.0 | 17.90 | 17.90 | 17.75 | 17.50 | 17.30 | 17.25 | 14.00 | 8.00 |
| 8.5 | 16.20 | 16.20 | 15.90 | 15.70 | 15.50 | 15.45 | 13.80 | 8.00 |
| 9.0 | 14.60 | 14.60 | 14.40 | 14.15 | 14.00 | 13.90 | 13.60 | 8.00 |
| 10.0 | | | 11.90 | 11.65 | 11.50 | 11.45 | 12.30 | 8.00 |
| 11.0 | | | 10.00 | 9.75 | 9.60 | 9.50 | 10.40 | 7.80 |
| 12.0 | | | 8.40 | 8.15 | 8.10 | 8.00 | 8.85 | 7.10 |
| 13.0 | | | 7.15 | 6.90 | 6.80 | 6.75 | 7.55 | 6.65 |
| 14.0 | | | | 5.90 | 5.80 | 5.75 | 6.50 | 6.15 |
| 16.0 | | | | 4.30 | 4.20 | 4.10 | 4.95 | 5.35 |
| 18.0 | | | | | 3.00 | 2.95 | 3.75 | 4.20 |
| 20.0 | | | | | 2.10 | 2.05 | 2.80 | 3.30 |
| 22.0 | | | | | | 1.30 | 2.10 | 2.55 |
| 24.0 | | | | | | 0.75 | 1.50 | 2.00 |
| 26.0 | | | | | | | 1.05 | 1.50 |
| 28.0 | | | | | | | 0.65 | 1.05 |
| 30.0 | | | | | | | | 0.70 |
| 31.0 | | | | | | | | 0.50 |
| Standard hook | for 40 ton + sub hook sheave | for 40 ton | | | | for 20 ton | | |
| Hook mass | 450 + 150 kg | 450 kg | | | | 320 kg | | |
| Parts of line | 14 | 10 | 8 | 8 | 6 | 5 | 4 | 4 |
| Critical boom angle | — | — | — | — | — | — | *33°* | *40°* |

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(Unit : Metric ton)

| Outriggers intermediately extended without front jack - 360° full range<br>Outriggers fully extended without front jack - over front | | | | | | | |
|---|---|---|---|---|---|---|---|
| Working radius (m) | 11.0m Boom | 15.0m Boom | 19.0m Boom | 23.0m Boom | 27.0m Boom | 35.0m Boom | 43.0m Boom |
| 3.0 | 32.00 | 28.00 | 28.00 | 24.00 | | | |
| 3.5 | 32.00 | 28.00 | 28.00 | 24.00 | | | |
| 4.0 | 32.00 | 28.00 | 28.00 | 24.00 | 20.00 | | |
| 4.5 | 29.00 | 28.00 | 28.00 | 24.00 | 20.00 | | |
| 5.0 | 22.00 | 21.90 | 21.50 | 21.40 | 20.00 | 14.00 | |
| 5.5 | 17.30 | 17.20 | 16.90 | 16.80 | 16.70 | 14.00 | |
| 6.0 | 14.10 | 14.00 | 13.70 | 13.60 | 13.50 | 14.00 | 8.00 |
| 6.5 | 11.80 | 11.65 | 11.35 | 11.30 | 11.20 | 12.30 | 8.00 |
| 7.0 | 10.00 | 9.85 | 9.55 | 9.50 | 9.45 | 10.45 | 8.00 |
| 7.5 | 8.55 | 8.40 | 8.15 | 8.10 | 8.05 | 9.00 | 8.00 |
| 8.0 | 7.40 | 7.25 | 7.00 | 6.95 | 6.90 | 7.85 | 8.00 |
| 9.0 | 5.70 | 5.55 | 5.30 | 5.25 | 5.20 | 6.05 | 6.50 |
| 10.0 | | 4.25 | 4.00 | 3.90 | 3.85 | 4.75 | 5.20 |
| 11.0 | | 3.20 | 2.95 | 2.90 | 2.80 | 3.70 | 4.20 |
| 12.0 | | 2.40 | 2.20 | 2.10 | 2.05 | 2.90 | 3.40 |
| 13.0 | | 1.80 | 1.55 | 1.45 | 1.40 | 2.25 | 2.70 |
| 14.0 | | | | | | 1.70 | 2.15 |
| 15.0 | | | | | | | 1.70 |
| Standard hook | for 40 ton | | | | for 20 ton | | |
| Hook mass | 450 kg | | | | 320 kg | | |
| Parts of line | 8 | 8 | 8 | 6 | 5 | 4 | 4 |
| Critical boom angle | — | — | *35°* | *48°* | *58°* | *64°* | *68°* |

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## 43 m Boom + 9.2 m Jib

## 43 m Boom + 15 m Jib

(Unit : Metric ton)

Outriggers fully extended with front jack - 360° full range
Outriggers fully extended without front jack - over side and over rear

| 43m Boom + 9.2m Jib | | | | | | | 43m Boom + 15m Jib | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boom angle (°) | Offset 5° | | Offset 25° | | Offset 45° | | Boom angle (°) | Offset 5° | | Offset 25° | | Offset 45° | |
| | Working radius (m) | Load (t) | Working radius (m) | Load (t) | Working radius (m) | Load (t) | | Working radius (m) | Load (t) | Working radius (m) | Load (t) | Working radius (m) | Load (t) |
| *81.0* | 10.00 | 3.50 | 12.75 | 2.30 | 14.60 | 1.25 | *81.0* | 11.75 | 2.50 | 16.20 | 1.20 | 19.40 | 0.70 |
| *80.0* | 11.05 | 3.50 | 13.70 | 2.30 | 15.45 | 1.25 | *80.0* | 12.95 | 2.50 | 17.20 | 1.20 | 20.35 | 0.69 |
| *79.0* | 12.05 | 3.48 | 14.65 | 2.30 | 16.30 | 1.24 | *79.0* | 14.10 | 2.49 | 18.15 | 1.19 | 21.25 | 0.69 |
| *78.0* | 13.00 | 3.40 | 15.60 | 2.25 | 17.20 | 1.23 | *78.0* | 15.10 | 2.45 | 19.10 | 1.17 | 22.15 | 0.68 |
| *77.0* | 13.90 | 3.23 | 16.50 | 2.19 | 18.05 | 1.21 | *77.0* | 16.20 | 2.30 | 20.10 | 1.15 | 23.05 | 0.67 |
| *76.0* | 14.85 | 3.04 | 17.40 | 2.12 | 18.90 | 1.19 | *76.0* | 17.25 | 2.17 | 21.10 | 1.12 | 24.00 | 0.67 |
| *75.0* | 15.75 | 2.90 | 18.25 | 2.06 | 19.75 | 1.17 | *75.0* | 18.25 | 2.06 | 22.15 | 1.10 | 24.85 | 0.65 |
| *74.0* | 16.70 | 2.75 | 19.15 | 1.99 | 20.55 | 1.16 | *74.0* | 19.20 | 1.95 | 23.15 | 1.07 | 25.70 | 0.64 |
| *72.0* | 18.50 | 2.49 | 20.90 | 1.85 | 22.25 | 1.12 | *72.0* | 21.10 | 1.76 | 25.05 | 1.02 | 27.45 | 0.62 |
| *70.0* | 20.15 | 2.28 | 22.60 | 1.73 | 23.90 | 1.09 | *70.0* | 23.00 | 1.59 | 26.80 | 0.97 | 29.10 | 0.61 |
| *68.0* | 21.85 | 2.09 | 24.20 | 1.62 | 25.40 | 1.06 | *68.0* | 24.90 | 1.47 | 28.60 | 0.93 | 30.65 | 0.59 |
| *66.0* | 23.55 | 1.91 | 25.80 | 1.53 | 26.85 | 1.04 | *66.0* | 26.75 | 1.35 | 30.30 | 0.90 | 32.25 | 0.58 |
| *64.0* | 25.05 | 1.68 | 27.40 | 1.43 | 28.35 | 1.02 | *64.0* | 28.60 | 1.24 | 32.00 | 0.87 | 33.80 | 0.57 |
| *62.0* | 26.55 | 1.41 | 28.85 | 1.24 | 29.85 | 1.00 | *62.0* | 30.40 | 1.10 | 33.70 | 0.84 | 35.30 | 0.56 |
| *60.0* | 28.00 | 1.13 | 30.20 | 1.00 | 31.15 | 0.85 | *60.0* | 32.00 | 0.87 | 35.25 | 0.72 | 36.75 | 0.55 |
| *59.0* | 28.75 | 1.00 | 30.85 | 0.89 | 31.80 | 0.77 | *59.0* | 32.80 | 0.76 | 36.00 | 0.66 | 37.45 | 0.55 |
| *58.0* | 29.45 | 0.86 | 31.50 | 0.77 | 32.45 | 0.69 | *58.0* | 33.60 | 0.64 | 36.60 | 0.58 | 38.20 | 0.54 |
| *57.0* | 30.20 | 0.73 | 32.20 | 0.66 | 33.05 | 0.61 | | | | | | | |
| *56.0* | 30.85 | 0.63 | 32.85 | 0.56 | 33.70 | 0.53 | | | | | | | |
| Standard hook | for 4 ton | | | | | | Standard hook | for 4 ton | | | | | |
| Hook mass | 120 kg | | | | | | Hook mass | 120 kg | | | | | |
| Parts of line | 1 | | | | | | Parts of line | 1 | | | | | |
| Critical boom angle | *55°* | | | | | | Critical boom angle | *57°* | | | | | |

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## 43 m Boom + 9.2 m Jib

## 43 m Boom + 15 m Jib

(Unit : Metric ton)

Outriggers intermediately extended without front jack - 360° full range
Outriggers fully extended without front jack - over front

| 43m Boom + 9.2m Jib | | | | | | | 43m Boom + 15m Jib | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boom angle (°) | Offset 5° | | Offset 25° | | Offset 45° | | Boom angle (°) | Offset 5° | | Offset 25° | | Offset 45° | |
| | Working radius (m) | Load (t) | Working radius (m) | Load (t) | Working radius (m) | Load (t) | | Working radius (m) | Load (t) | Working radius (m) | Load (t) | Working radius (m) | Load (t) |
| *81.0* | 10.00 | 3.50 | 12.75 | 2.30 | 14.60 | 1.25 | *81.0* | 11.75 | 2.50 | 16.20 | 1.20 | 19.40 | 0.70 |
| *80.0* | 11.05 | 3.50 | 13.70 | 2.30 | 15.45 | 1.25 | *80.0* | 12.95 | 2.50 | 17.20 | 1.20 | 20.35 | 0.69 |
| *79.0* | 12.05 | 3.42 | 14.65 | 2.30 | 16.30 | 1.24 | *79.0* | 14.10 | 2.49 | 18.15 | 1.19 | 21.25 | 0.69 |
| *78.0* | 12.90 | 3.05 | 15.60 | 2.25 | 17.20 | 1.23 | *78.0* | 15.10 | 2.45 | 19.10 | 1.17 | 22.15 | 0.68 |
| *77.0* | 13.65 | 2.67 | 16.45 | 2.06 | 18.05 | 1.21 | *77.0* | 16.05 | 2.06 | 20.10 | 1.15 | 23.05 | 0.67 |
| *76.0* | 14.50 | 2.27 | 17.20 | 1.76 | 18.90 | 1.19 | | | | | | | |
| Standard hook | for 4 ton | | | | | | Standard hook | for 4 ton | | | | | |
| Hook mass | 120 kg | | | | | | Hook mass | 120 kg | | | | | |
| Parts of line | 1 | | | | | | Parts of line | 1 | | | | | |
| Critical boom angle | *75°* | | | | | | Critical boom angle | *76°* | | | | | |

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(Unit : Metric ton)

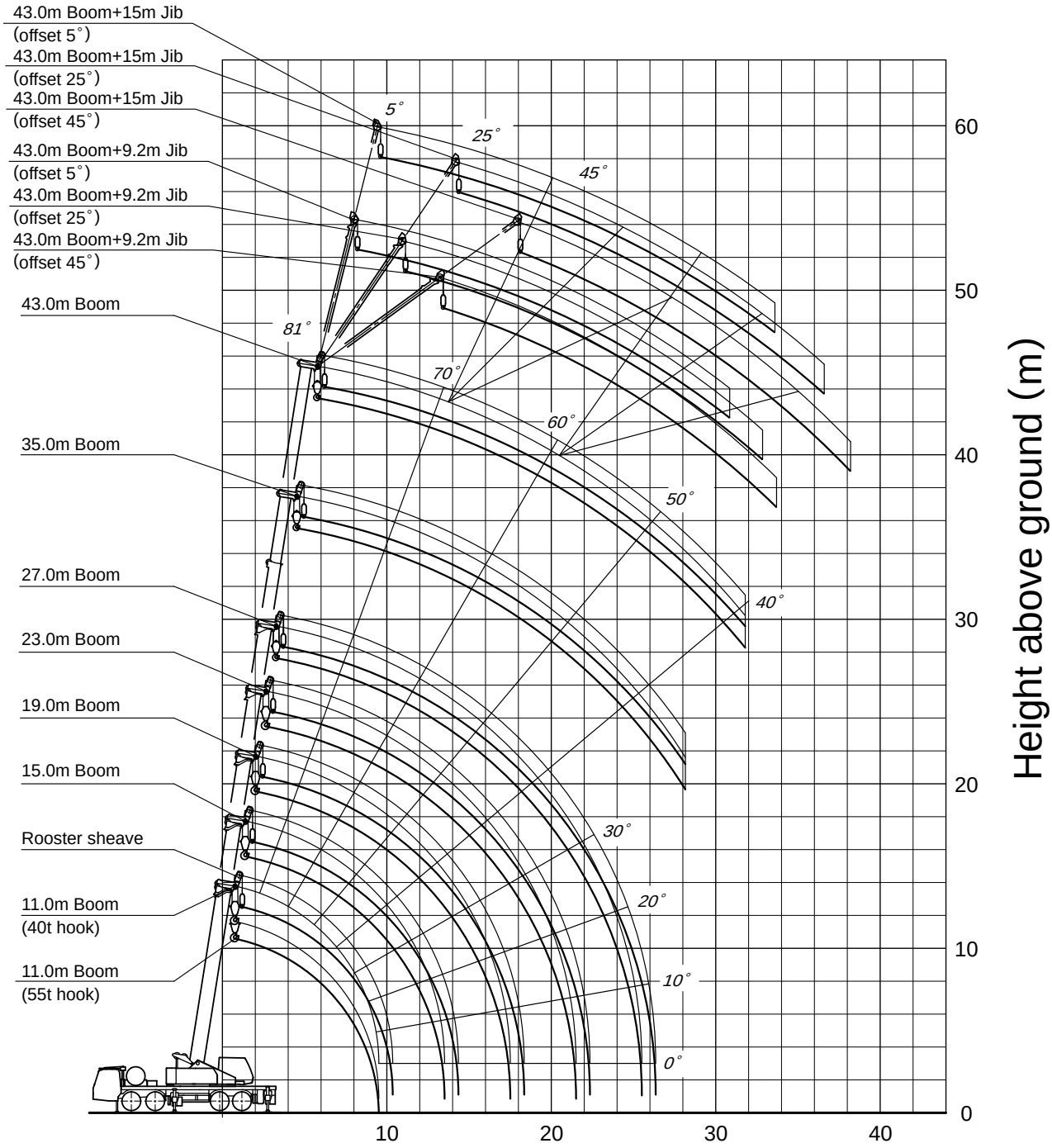
| Outriggers fully retracted (blocked on vertical cyls.) - 360° full range | |
|---|---|
| Working radius (m) | 11.0 m Boom |
| 3.0 | 8.00 |
| 3.5 | 6.40 |
| 4.0 | 5.10 |
| 4.5 | 4.20 |
| 5.0 | 3.40 |
| 5.5 | 2.80 |
| 6.0 | 2.30 |
| 6.5 | 1.90 |
| 7.0 | 1.60 |
| 7.5 | 1.25 |
| 8.0 | 1.00 |
| Standard hook | for 40 ton |
| Hook mass | 450 kg |
| Parts of line | 10 |

## ■Notes for the rated lifting capacity chart

### Precautions

1. The rated lifting capacities are the maximum load guaranteed on a firm level ground and include the mass of hook block and other lifting equipment. The capacities enclosed with bold lines are based on the structural strength of machine and the others are based on the stability of machine.
2. The working radii as given in the table are the actual values including the deflection of the boom. Therefore, operate the machine based on the working radius. However, the working radii shown for jib operations are based on the values obtained when the boom is fully extended (43 m).
   Jib operations should be performed on the basis of boom angle only, regardless of boom length when the boom is not fully extended.
3. The rated lifting capacities for the rooster sheave are equivalent to the rated lifting capacities for the main boom to a maximum of 4000 kg. At all times the mass of all lifting equipment in use (including main hook block suspended from boom head)forms part of load and must be subtracted from the rated lifting capacity.
4. If the boom length exceeds the specified value, the rated lifting capacities for the boom length above and below the present boom length should be referred to, and the crane should be operated within the smaller lifting capacity.
5. When using the main boom with the jib installed, 4000 kg plus the mass of hook block and other lifting equipment, etc., should be subtracted from the rated lifting capacities.
   When performing the above operation, do not use the rooster sheave.
6. Critical boom angles for each boom length are shown on bottommost line of lifting capacity table.
   If the boom angle is lowered to less than the critical boom angle, the machine will tip over without load. Therefore, never lower the boom below these angles.
7. The standard number of parts of line is shown in the rated lifting capacity table.
   If you work with a non-standard number of parts of line, take 39.2kN (4tf) as the maximum load on any part of the wire rope.
8. Over front lifting performance without front jack is inferior to over side and over rear lifting performance. Great care should be taken when transferring from over side to over front since there is a danger of overloading.
9. 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.
10. The machine will tip over or be damaged if operated with a load exceeding that specified in the rated lifting capacity table or not conforming to correct handling.
    If such trouble occurs, the machine will not be guaranteed.

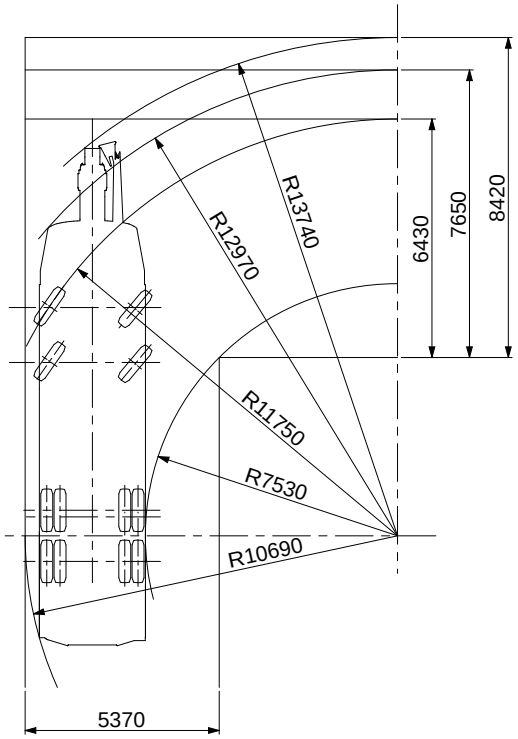
## ■WORKING RANGE



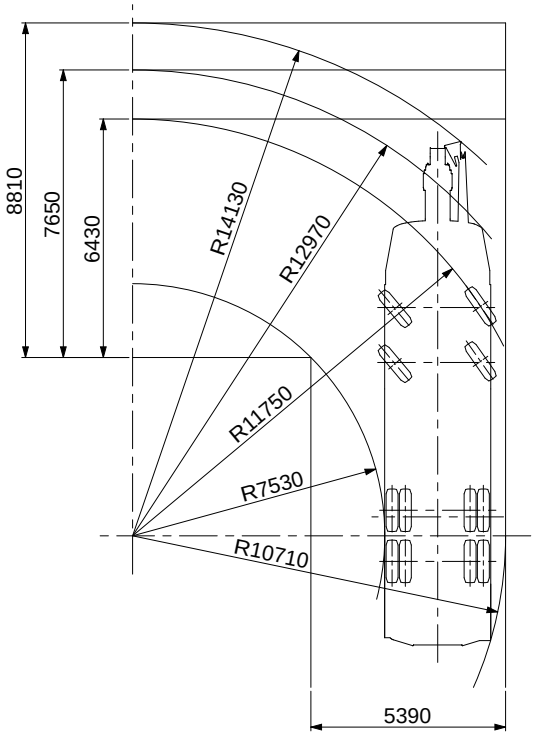

Note：Deflection of boom and jib is excluded

## ■Minimum path width

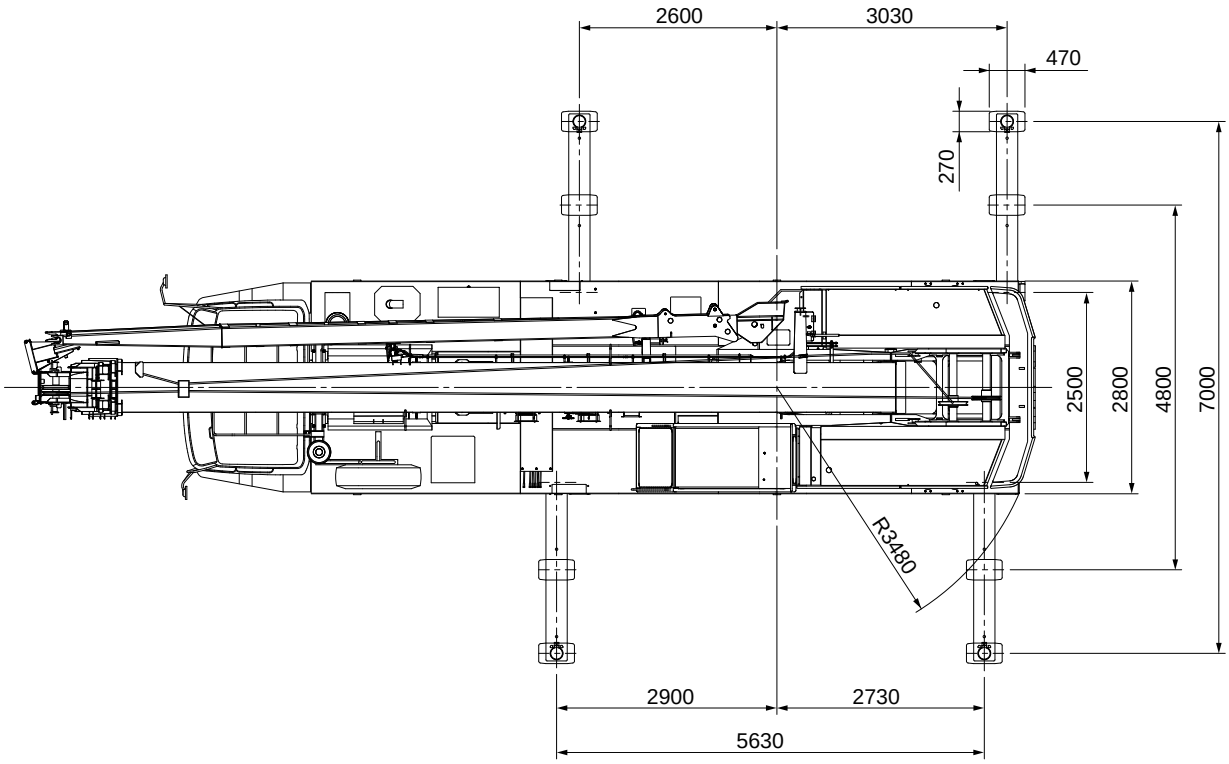
●Right turn




●Left turn

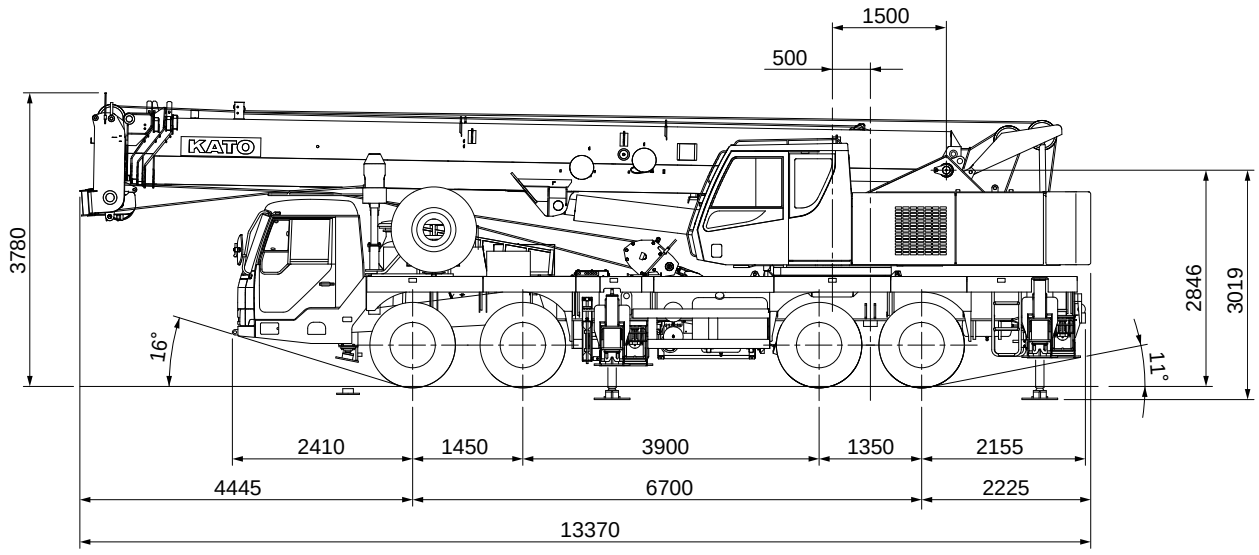


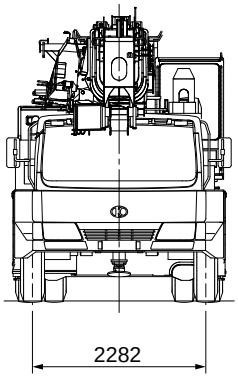

## ■Overall view

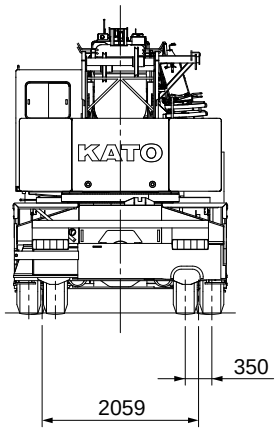



Reduced scale : 1/100 Unit (mm)

## ■Overall view




Reduced scale : 1/100 Unit (mm)

* KATO products and specifications are subject to improvements and changes without notice.

Address inguiries to:

KATO

KATO WORKS CO.,LTD.

9-37, Higashi-ohi 1-chome,Shinagawa-ku, Tokyo, 140-0011, Japan
Tel. : Head Office Tokyo (03) 3458-1111
Overseas Marketing Department. Tokyo (03) 3458-1115
Fax. : Tokyo (03) 3458-1163
URL http://www.kato-works.co.jp

ISO 9001 BUREAU VERITAS Certification

We acquired the "ISO 9001" certification which is an international standard for quality assurance.

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