ROUGH TERRAIN CRANE

GR-1600XL
145 METRIC TON CAPACITY (160 US TON)

DIMENSIONS

Front

Left

Rear

Right

Photo: Hydraulic offset jib

Photo: Hydraulic offset jib

*Some specifications are subject to change

GR-1600XL: High Quality We Are Proud Of

The GR-1600XL: High Quality We Are Proud Of

Photo: Hydraulic offset jib

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*Some specifications are subject to change
Plenty of new functions incorporated!

**HELLO-NET**

It is a crane management system available to be used via the Internet that is capable of taking a grip on crane operating conditions, a machine location and so forth in a timely manner which serve to widen the service area differs according to individual countries.

![HELLO-NET Diagram]

**Eco mode**

The system controls the maximum engine speed during crane operation. In addition, due to curbing an unnecessary rise in the engine speed that occurs when accelerated to excess, the system enables CO₂ emissions and fuel consumption to decrease by max. 13 % with Eco mode 1 employed, and max. 21 % when Eco mode 2 is applied. In addition, it realizes a low level of noise.

**Positive control**

The system effectively controls the quantity of hydraulic pump discharge at the time of crane operation in response to the amount of movement applied by the operating lever. Additionally, it keeps the quantity of hydraulic pump discharge to a minimum, reducing CO₂ emissions and fuel consumption by up to 20 %.

**Fuel monitoring**

The system constantly monitors and displays fuel consuming conditions on the AML screen. Checking the indicator enables you to prevent wasteful acceleration and wasteful standby.

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**ROUGH TERRAIN CRANE**

**GR-1600XL**

Crane capacity: 145,000 kg at 2.5 m
6-section long boom: 13.1 m - 61.0 m
2-staged bi-fold jib: 10.3 m / 18.0 m
Insert jib (option): 7.0 m (1 pce.)
14.0 m (2 pcs.)
Short jib (option): 3.6 m

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**GPS**

Satellite/mobile communications

![GPS Diagram]

Note: HELLO-NET availability varies by country. For detail, please contact your distributor or our sales staff in charge.

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**ROUGH TERRAIN CRANE**

**GR-1600XL**

Introducing a brand-new option for Tadano’s rough terrain crane with the highest lifting capacity in class worldwide!

Get more done than ever before with our new heavy lift jib. Where previous generations of cranes would be limited, the GR-1600XL can lift higher and heavier loads with this addition. We are also now offering an insert lattice jib, which is a flexible option for operating at height in large facilities such as refineries or petrochemical factories. These new items were designed to maximize work efficiency and expand your abilities. The GR-1600XL never stops evolving.
The rounded boom is made of high tensile steel, which allows for decreased boom weight as well as increased boom strength. The high performance AML-C comes standard and helps the operator maintain safe operations.

**Single telescopic cylinder**

For extension and retraction of sections, 6 section box type construction consist of 1 base section and 5 telescopic sections are extended by a single telescoping cylinder. All sections are fully extended/retracted automatically and locked in the selected working position.

**Outline of telescoping mode**

Boom telescoping of this crane is performed with one telescoping cylinder. Each telescopic section is extended and fixed with pins in sequence from the top with several telescoping modes based on the designated job plan.

**Display telescoping status**

A single cylinder and each section of boom actual condition are displayed on the AML by Telescoping monitor switch.

**Two winches with cable follower**

Both the main winch and the auxiliary winch with powerful line pull operate at high speeds, thus serving to enhance work efficiency. *Maximum permissible line pull may be affected by wire rope strength.

**New crane structure**

During the development of the structural shape of the crane, *FEM analysis was applied to achieve a design tailored for optimal operation. The slewing frames’ structure ensures a highly rigid, compact style that is well suited for the overall planned design of the crane. Continuing the TADANO tradition of excellence and innovation.

*FEM: Finite Element Method

**Tilted cab**

You can operate the crane comfortably by tilting the cab during high hoisting operations such as lifting with the jib. The cab tilting angle is between 0° and 15°.

**Bi-fold jib**

A two-stage, bi-fold lattice-type jib can be offset at 0°, 20°, and 40° to enable the operator to carry out jobs that require extra reaching ability.

**New**

Two offset angle (20° and 40°), new short jib can be used for lifting heavy load in tight spaces.

**Ultimate boom for rough terrain crane**

A two-stage, bi-fold lattice-type jib can be offset at 0°, 20°, and 40° to enable the operator to carry out jobs that require extra reaching ability.

**New**

The new insert jib can be used for reaching higher place where the boom cannot reach.

**New**

The new insert jib can be used for reaching higher place where the boom cannot reach.

**Ultimate boom for rough terrain crane**

A two-stage, bi-fold lattice-type jib can be offset at 0°, 20°, and 40° to enable the operator to carry out jobs that require extra reaching ability.

**Hose offset jib (5°-40°)**

Hydraulic offset jib can be adjusted between 5° to 40° by the jib tilt cylinder.

**New**

The new insert jib can be used for reaching higher place where the boom cannot reach.

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The crane cab provides improved livability and offers the operator a more comfortable working environment.

Operator comfort

Control of asymmetric extension width of outriggers

When operating the crane with the asymmetric outriggers extended, the AML-C detects the extension width of all of the crane’s outriggers (front, rear, left and right) to measure maximum work capacity in each area. When slewing the boom from the longer outrigger area to the shorter outrigger area, the AML-C detects the motion and displays the maximum capacity according to the extension width of each of the outriggers, and brings the motion to a slow stop before it reaches the maximum capacity. Regardless of operator awareness, the AML-C’s slow stop function will help to minimize any safety risk.

Automatic moment limiter [AML-C]

Tadano’s new AML-C is easy to use. It allows the operator to simultaneously monitor: boom angle, boom length, operating pressure of the elevating cylinder, the extension width of outriggers, slewing position, rated lifting capacity and present hook load. All of this enables the AML-C to move easily through lifting capacity changes without changing configurations and codes to make a lift.

The AML-C provides both audio and visual warnings when a condition exists that will overload the crane and automatically employs our slow stop function to avoid shock loads.

The AML-C with “OPERATOR” pre-set working range limits and automatic slow stop functions will assist the operator to deliver safe smooth operations.

Control of asymmetric extension width of outriggers

Outrigger Maximum extension

Outrigger Middle extension

Outrigger Minimum extension

Front steps

Rear steps

Left side steps

Right side steps

Tool box

Aviation obstruction light (option) and anemometer (option)

Air conditioner

Hot-water heater and air conditioning.

A: Over-front
B: Over-rear
C: Over-side
D: Over-side
E: Rated Load [O/R max. 8.2 m]
F: Rated Load [O/R mid. 7.3 m]
G: Rated Load [O/R mid. 5.5 m]
H: Rated Load [O/R min. 2.99 m]

Outrigger Maximum extension

Middle extension 7.3 m

Middle extension 5.5 m

Minimum extension 2.99 m

Minimum extension 8.2 m

SLEW CAPACITY MODE !

Photo: Hydraulic offset jib

1 GR-1600XL 6GR-1600XL
**High performance engine**

Mitsubishi 6M60-TL

4 cycle, turbo charged and after cooled, 6 cylinder in line, direct injection, water cooled diesel engine.

Max. output: 200 kW at 2,600 min\(^{-1}\)

Max. torque: 785 N·m at 1,400 min\(^{-1}\)

**Smooth transmission**

- Electronically controlled, fully automatic transmission.
- Torque converter driving full power shift with driving axle selector.
- 5 forward and 2 reverse speeds, constant mesh.
  - 2 speeds - High range - 2 wheel drive; 4 wheel drive
  - 3 speeds - Low range - 4 wheel drive

**New carrier frame**

The new carrier frame design was developed and built so that its lightweight is compatible with its high rigidity to achieve an advanced level of performance. As a result, the rigidity was enhanced enabling highly stabilized maneuverability.

**Axle**

1st: Full floating type, steering and driving axle with planetary reduction and open differential.

2nd: Steering and not driving axle.

3rd: Full floating type, steering and driving axle with planetary reduction and open differential.

**Brake systems**

Service: Air over hydraulic disc brakes on all 6 wheels.

Parking/Emergency: Spring applied-air released brake acting on input shaft of 1st and 3rd axle.

Auxiliary: Electro-pneumatic operated exhaust brake.

**4 Steering mode**

Hydraulic power steering controlled by steering wheel.

**Traveling on roads**

- 2 wheel front
  - Front steering only.
  - This steering method is the same as that of general vehicles.

- 6 wheel coordinated
  - Front and rear wheels are steered in opposite directions.
  - The turning radius is decreased.
  - Useful for movement in a small area.

- 6 wheel crab
  - Front and rear wheels are steered in the same direction.
  - The vehicle can move diagonally.
  - Useful for pulling over.

**Driving in work site**

- 4 wheel rear
  - Rear steering only.
  - The rear end of the vehicle swings outward like a forklift.
  - Useful for easy approach of a narrow area.

**Carrier**

The GR-1600XL has a 3-axle, compact width/height carrier which offers improved maneuverability and the ability to reduce space for transportation.

Overall length: approx. 16,190 mm

Overall width: approx. 3,315 mm

Overall height: approx. 3,500 mm (+ Extra weights)

Min. turning radius (at center of extreme outer tire)

2-wheel steering: 14.9 m

6-wheel steering: 9.9 m

Max. traveling speed (with counterweight): 15 km/h

Gradeability (\(\tan \phi\)) (with 18.2t counterweight): computed 52 % (at stall) *30 %

* Machine should be operated within the limit of engine crankcase design (17°: Mitsubishi 6M60-TL).
**SPECIFICATIONS**

**Max. traveling speed**

15 km/h

**Angle**

20° (at stall), 52% (at stall), 30%*2

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Mass: 32.9 t</th>
<th>Overall width: 3,315 mm</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mass: 4.5 t</th>
<th>Overall width: 3,015 mm</th>
</tr>
</thead>
</table>

- **Counterweights**
  - Front outrigger unit
  - Rear outrigger unit

- **Self-removable counterweight**
  - Counterweight mounting/dismounting remote controller

**Counterweight combinations**

<table>
<thead>
<tr>
<th>Standard weight</th>
<th>Extra weights</th>
<th>Standard weight only</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.2 t</td>
<td>6.55 t</td>
<td>5.50 t</td>
</tr>
</tbody>
</table>

**Mounting and dismounting systems**

The GR-1600XL has several mounting and dismounting systems for traveling and transportation. Only the boom mounting system is optional.

**Mounting and dismounting with 1 auxiliary crane**

**CARRIERS**

- Hydraulic, beam and jack outriggers, vertical jack cylinders equipped with integral holding valve. Each outrigger beam and jack is controlled independently from cab.

**COUNTERWEIGHTS**

- Self-removable counterweight
  - Counterweight mounting/dismounting cylinder
  - Counterweight mounting/dismounting remote controller

**SUSPENSIONS**

- 4-wheel front, 4-wheel rear

**STABILIZERS**

- 2-wheel, 4-wheel rear

**CONTROL VALVES**

- Tandum gear pump for steering, slewing and other equipment.

**HYDRAULIC SYSTEM**

- Pumps: 2 variable position pumps for crane function, Tandum gear pump for steering, slewing and other equipment.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Mass: 13.3 t</th>
<th>Mass: 18.2 t</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mass: 2.0 t</th>
<th>Mass: 2.1 t</th>
</tr>
</thead>
</table>

- **Main**
  - Main hydraulic oil pressure
  - Fuel consumption monitor
  - Main winch / auxiliary winch select
  - On-rubber indicator

- **Auxiliary**
  - Drum rotation indicator (audible and visible type) main engine crankcase design (17˚: MITSUBISHI 6M60-TL).

- **PUMPS**
  - Variable type pump with pressure control driven by hydraulic axial piston motor.

- **HYDRAULIC OFFSET JIB**
  - Lifted height (m): 25.0

- **SLEWING**
  - Steaming speed: 1.3 m/min

- **Engine**
  - Piston displacement: 7,540 cm
  - Bore x stroke: 118 mm x 115 mm

- **TRANSMISSION**
  - Max. output: 200 kW at 2,600 min-1
  - Max. torque: 785 N•m at 1,400 min-1

- **STEERING**
  - 4 steering modes available:
    - 2-wheel front, 4-wheel rear
    - 2-wheel coordinated, 4-wheel Crab

- **FUEL TANK CAPACITY**
  - 300 liters

**Engine**

- 4-stroke, turbocharged and after cooled, 6-cylinder inline, direct injection, water cooled diesel engine.

**TRANSMISSION**

- Variable type pump with pressure control driven by hydraulic axial piston motor.

**SLEWING RADIUS**

- Max. 100°, Mid. 85°, Low. 70°, 50°, 35°, 25°, 20°, 15°, 10°, 5°, 0°

<table>
<thead>
<tr>
<th>Max. output</th>
<th>Max. torque</th>
</tr>
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<tbody>
<tr>
<td>200 kW at 2,600 min-1</td>
<td>785 N•m at 1,400 min-1</td>
</tr>
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</table>

**FUEL TANK**

- 850 liters capacity. External sight level gauge.

**TIRES**

- 26.5R25, Air pressure: 650 kPa

**SUSPENSIONS**

- 500 liters

**STABILIZERS**

- Hydraulic, beam and jack outriggers, vertical jack cylinders equipped with integral holding valve. Each outrigger beam and jack is controlled independently from cab.

**CONTROL VALVES**

- Tandum gear pump for steering, slewing and other equipment.

**HYDRAULIC SYSTEM**

- Pumps: 2 variable position pumps for crane function, Tandum gear pump for steering, slewing and other equipment.

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