

RT-150L2

Casing Rotator
(Low-Head type)

SPECIFICATION

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Nagoya, Japan

Tel : 81- (52) - 623 - 3529

Fax: 81- (52) - 623 - 4349

Due to company policy of continuous development and improvement, NIPPON SHARYO reserves the right to change designs and specifications without notice.

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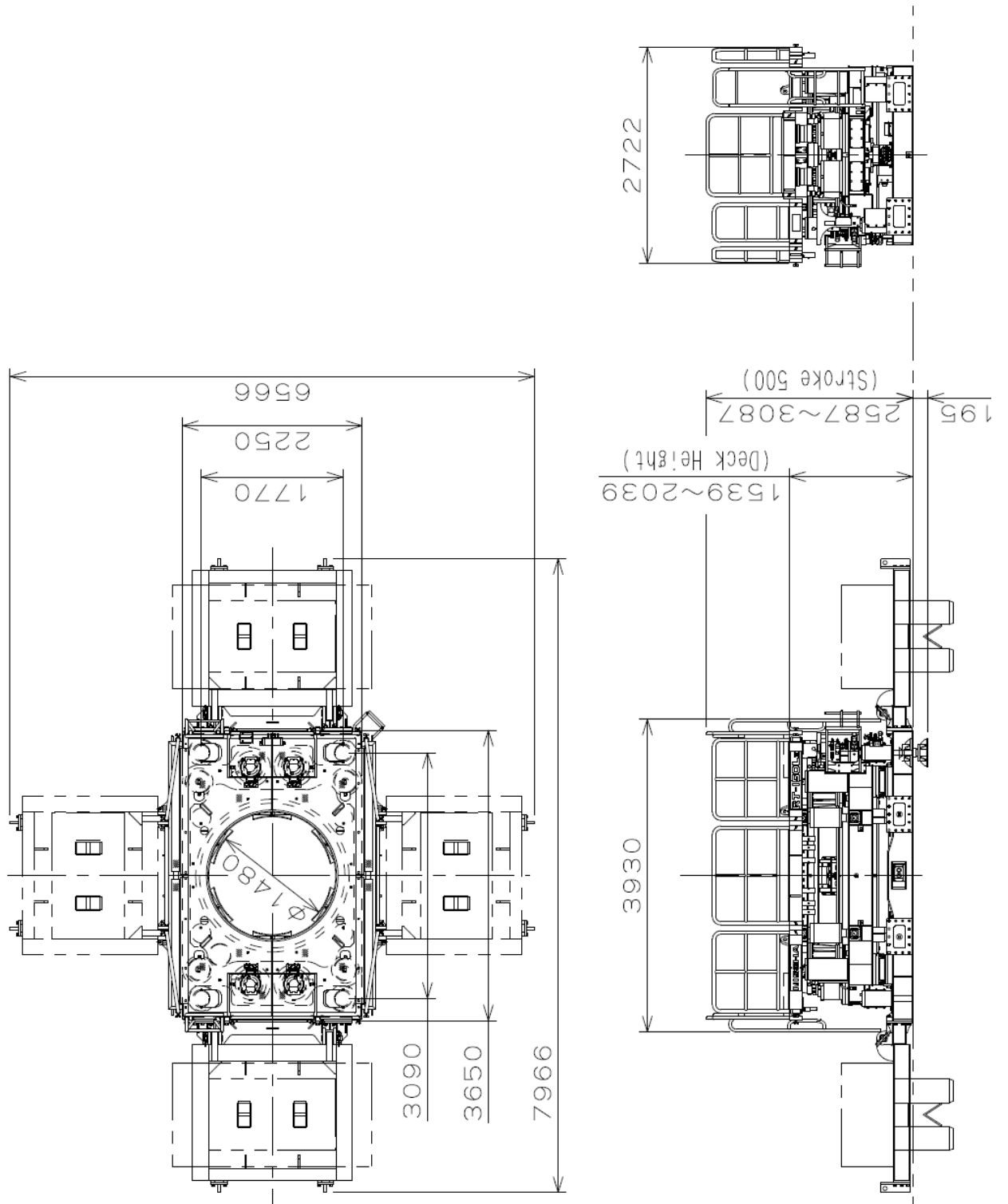
1. SPECIFICATIONS OF ROTATOR

1.1 Model	RT-150L2
1.2 Bore hole diameter	800 to 1500 mm (Additional collar sets (optional extra) are necessary for smaller boring diameter than 1500 mm)
1.3 Casing extracting force	1970 kN (201 tf)
1.4 Casing driving (push-down) force	390kN(Hydraulic)+130kN(Dead weight) (40 tf + 13 tf)
1.5 Thrust cylinder stroke	500 mm
1.6 Torque	1230/420 kN-m (125/43 tf-m)
1.7 Rotation speed	1.5/4.3 min ⁻¹ (1.5/4.3 rpm)
1.8 Weight (Excluding collar set)	17.0 ton (Equipped sub chuck (optional extra) excluding collar set) 17.7 ton

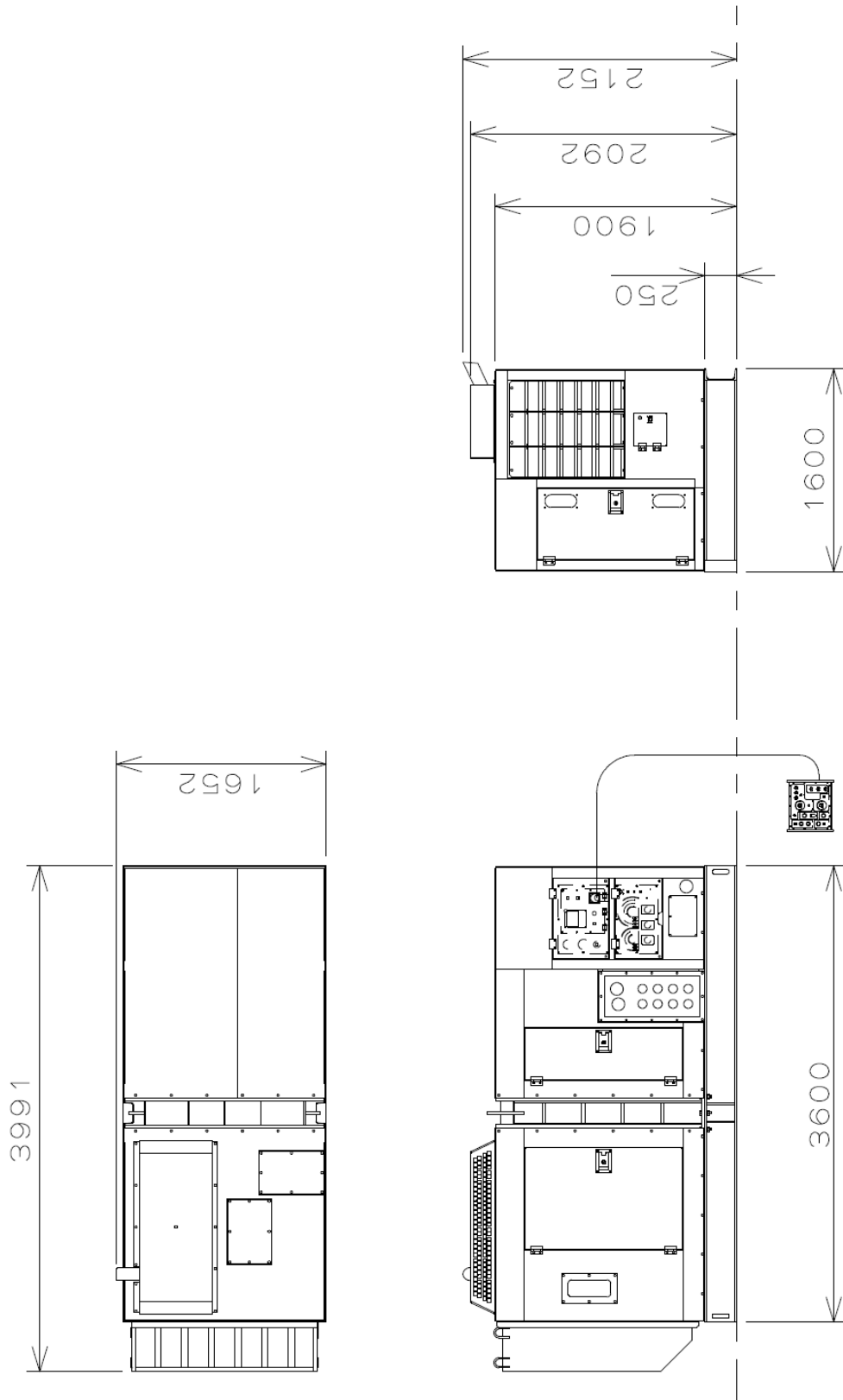
2. SPECIFICATIONS OF HYDRAULIC POWER PACK

2.1 Model	RTP200E-2L
2.2 Diesel engine	
1) Maker	Hino Motors, Ltd.
2) Model	J08C-UT
3) Type	Water cooled, 4-cycle, overhead valve, in-line, 6-cylinder, direct fuel injection, turbo-charged
4) Rated output	147 kW / 2100 min ⁻¹ (200 PS / 2100 rpm)
2.3 Hydraulic pump	
1) Variable displacement plunger pump for rotation	
Flow	228 lit./min x 2 pcs.
Pressure	29.4 MPa (300 kgf/cm ²)
2) Variable displacement plunger pump for drive/extraction, chucking	
Flow	168 lit./min
Pressure	25.5 MPa (260 kgf/cm ²)
3) Gear pump for leveling	
Flow	75.6 lit./min
Pressure	20.6 MPa (210 kgf/cm ²)
2.4 Dimensions (L x W x H)	3,991 mm x 1,652 mm x 2,152 mm
2.5 Operating weight	5.0 ton

3. GENERAL DIMENSIONS OF RT-150L2 ROTATOR



4. GENERAL DIMENSIONS OF RTP200E-2L HYDRAULIC POWER PACK



5. STRUCTURE AND FUNCTIONS

5.1 Outline

The casing rotator is separated into two main components, which are a rotator, model RT-150L2, and a hydraulic power pack, model RTP200E-2L, for facilitating their installation work at restricted sites.

RT-150L2 is a low head and light weight type casing rotator which enables to work at low height jobsite.

5.2 Rotator

1) Separate/stationary type

The rotator and hydraulic power pack are connected with hydraulic hoses equipped quick-release couplings and controlled through a remote control box or a radio control box (Optional extra) as desired.

The rotator can be lifted with 4 sling ropes and shackles, which are supplied as standard accessories, and place it to the point where the pile to be constructed by a crawler crane of 50 tons and larger lifting capacity.

2) Leveling

The rotator can be maintained at horizontal position by extending and retracting four leveling jacks located on its lower frame.

3) Chucking

The rotator can secure and release the casing of $\phi 1500$ (Nominal size) by six (6) pieces of wedge-type chucks installed around the casing and four chuck cylinders, with no regard for the location of the chucking mechanism.

The chucks are mounted between upper and lower ball-raced bearings, which eliminates connection and disconnection work of their hydraulic hoses when opening and closing the chucks.

The chuck can also secure the casings ranging from 800 to 1300 mm in diameter by adding respective sizes of chuck collar sets.

4) Rotation

The casing secured by the chucks can be rotated both clockwise and counter-clockwise directions through a pair of drive motors.

The rotation speed can be adjusted from 0 to 4.3 min^{-1} by a speed control dial and high/low range by a speed change-over switch. The maximum torque is 1230 kN-m (125 tf-m).

5) Driving/extraction

The casing can be driven and extracted by four thrust cylinders with the stroke of 500 mm. The maximum driving force is 520 kN (53tf) including the dead weight of 130 kN (13tf) and the extraction force is 1970 kN (201tf).

6) Automatic oscillation

The casing can be oscillated with the desired change-over timing by the timers, the oscillation direction is automatically changed over at the set up timing.

7) Sub chuck (Optional extra)

In case that the drilling depth is comparatively deep, the weight of the casing may exceed the lifting capacity of the assistant crane when the casing is extracted. The sub chuck holds the casing while the main chuck is released and fills the gap of overload of the assistant crane.

The maximum allowable holding force: 490 kN (50 ton)

5.3 Hydraulic power pack

1) Enclosure

The hydraulic power pack is provided with thick steel plate enclosure, lined by sound-absorbing materials for noise prevention.

The hydraulic power pack can be lifted with a lifting device on the top of the enclosure by sling ropes.

2) Diesel engine

The hydraulic power pack is powered by a diesel engine of model HINO J08C-UT, water cooled, 4-cycles, turbo-charged and direct fuel injection type.

The rated output is 147 kW/2100 min⁻¹ (200 PS/2100 rpm).

3) Hydraulic pump

2-variable displacement plunger pump of 228 lit./min at 29.4 MPa (300kgf/cm²) for rotation.

1-variable displacement plunger pump of 168 lit./min at 25.5 MPa (260kgf/cm²) for drive/extraction and chucking.

1-gear pump of 75.6 lit./min at 20.6 MPa (210kgf/cm²) for leveling.

5.4 Remote control box

1) Remote control button

2) Radio control button

3) Emergency lamp

4) Chuck open button

5) Chuck open/close switch

- 6) Engine stop button
- 7) Engine speed control switch
- 8) Jack power button
- 9) Torque meter
- 10) Extraction/chuck force meter
- 11) Rotation direction change-over switch
- 12) Drive/extraction change-over switch
- 13) Rotation/oscillation change-over switch
- 14) Oscillation timer
- 15) Rotation speed high/low change-over switch.
- 16) Rotation speed adjuster

6. STANDARD SCOPE OF SUPPLY

- 6.1 Rotator model: RT-150L2 1 unit
equipped with the following accessories;
- 1) Sling rope and shackles 4 sets
 - 2) Reaction bracket 2 pcs.
 - 3) Spike 2 pcs.
 - 4) Step \varnothing 1200, 1000 1 set
 - 5) Guard pipe 4 pcs.
 - 6) Remote control box with cable of 20 meters long and plugs/receptacles 1 set
- 6.2 Hydraulic power pack model: RTP200E-2L 1 unit
provided with hydraulic hoses of 12.5m long with quick-release couplings.
- 6.3 Others
- 1) Automatic oscillation 1 set

7. OPTIONAL EXTRA

- 1) Clamp collar for main chuck
 \varnothing 1300, 1200, 1100, 1000, 800 Each set - 6 pcs.
- 2) Clamp collar for sub chuck
 \varnothing 1300, 1200, 1100, 1000, 800 Each set - 6 pcs.
- 3) Sub chuck set 1 set
- 4) Inclinometer 1 set
- 5) Operator's room 1 unit

8. GENERAL CONDITIONS

This specifications shall cover the standard specification of model RT-150L2 Casing Rotator and RTP200E2-2L Hydraulic Power Pack (here-in-after called "The machine") manufactured by NIPPON SHARYO, LTD.

The general arrangement and principal dimensions of the machine are shown in the drawing attached.

1) Design and workmanship

The machine shall be designed to perform the maximum efficiency with the least fuel consumption and the lowest maintenance costs.

The workmanship shall be of the first class in all respects.

The machine shall be built for simple mechanical arrangement and easy in inspection and maintenance.

2) Materials

The materials used in the manufacture of the machine shall be of the highest quality, free from defects and imperfections.

Principal materials such as bolts, nuts, seals and steel plates used in the machine confirm to the Japanese Industrial Standards. (Almost equal to ISO)

3) Test and inspection

Routine test and inspection in our factory shall be final.

4) Painting and lettering

Under-coating by anti-rust paint and enamel finishing shall be performed in accordance with manufacturer's standard practice.

Main parts of the equipment shall be painted in NISSHA Green and other equipment in manufacturer's standard.

5) Service conditions

The equipment shall meet the following service conditions.

Ambient temperature: -10 deg. C or higher and 40 deg. C or lower.

6) Warranty

All the machine specified herein shall be warranted by us for a period of twelve (12) calendar months after the date of being put into operation, or fourteen (14) months after the date of shipment at a Japanese port, or one thousand engine operation hours according to the service hour meter, whichever is soonest.

The warranty shall cover defects in design, materials and workmanship only, shall not applicable to damage sustained mishandling of the machine or normal wear and tear.

The warranty shall not be applicable to the parts and materials mentioned below.

- ① Cutting bits
- ② Wear plates
- ③ Wire ropes
- ④ Rubber made parts
- ⑤ Seals as o-rings, seal rings, back-up rings, etc.
- ⑥ Gaskets and sheet packings
- ⑦ Filter elements
- ⑧ Batteries
- ⑨ Electric wiring
- ⑩ Glasses
- ⑪ Other quick moving parts
- ⑫ Lubricants

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