

CASING ROTATOR

RT

RT-300III / RT-260H / RT-200H

 **NIPPON SHARYO**



NIPPON SHARYO

BUILT ON HISTORY.

TRUSTED FOR THE FUTURE.

More than a century of engineering expertise supporting the infrastructure of modern society.

Engineering Excellence Since 1896

Founded in 1896 as Japan's first railway rolling stock manufacturer, Nippon Sharyo has supported transportation and infrastructure development for more than a century. The engineering expertise, manufacturing precision, and commitment to quality cultivated throughout our history remain at the heart of everything we build.

A Stable and Trusted Partner

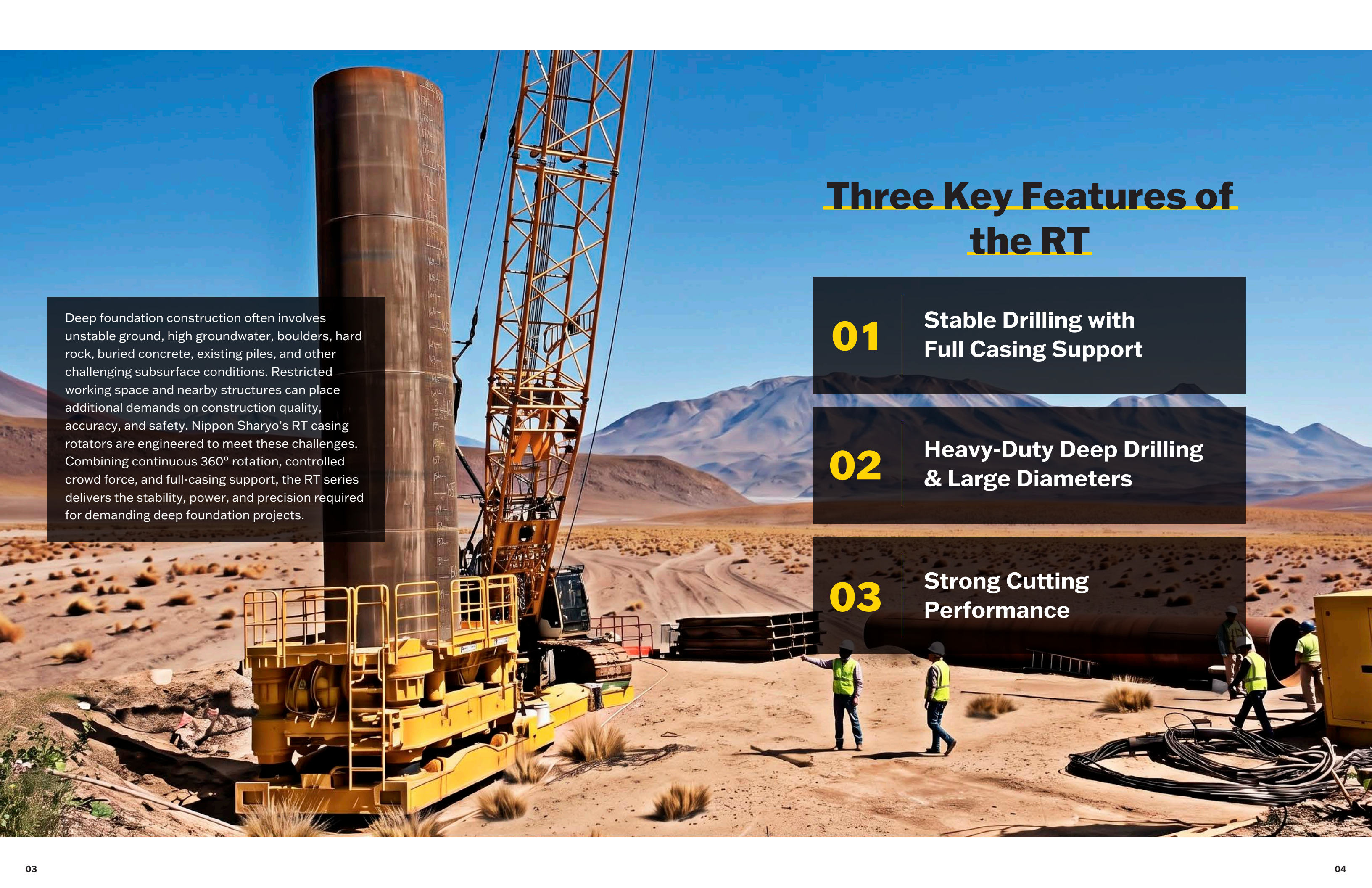
Listed on the **Prime Market of the Tokyo Stock Exchange**, Nippon Sharyo offers the stability, accountability, and long-term commitment customers expect from a trusted business partner.

Japan's Leading Foundation Equipment Manufacturer

Nippon Sharyo specializes in deep foundation equipment and holds the **No. 1 market share in Japan**.

Since beginning casing rotator production in **1987**, we have manufactured more than **800 units** for foundation projects worldwide.





Deep foundation construction often involves unstable ground, high groundwater, boulders, hard rock, buried concrete, existing piles, and other challenging subsurface conditions. Restricted working space and nearby structures can place additional demands on construction quality, accuracy, and safety. Nippon Sharyo's RT casing rotators are engineered to meet these challenges. Combining continuous 360° rotation, controlled crowd force, and full-casing support, the RT series delivers the stability, power, and precision required for demanding deep foundation projects.

Three Key Features of the RT

01

Stable Drilling with Full Casing Support

02

Heavy-Duty Deep Drilling & Large Diameters

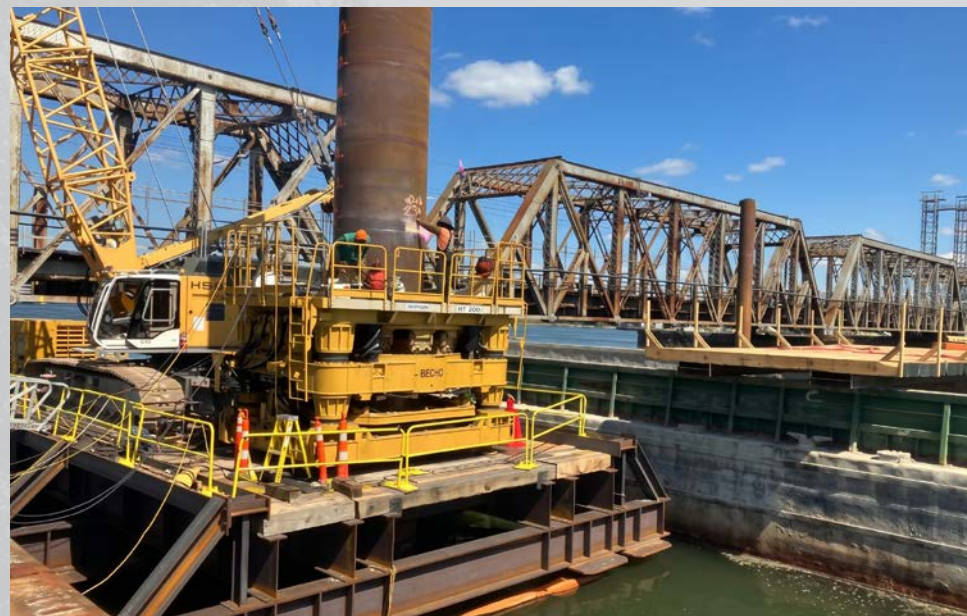
03

Strong Cutting Performance

01

Stable Drilling with Full Casing Support

Full casing provides continuous support to the borehole wall during excavation, helping maintain stability in soft ground, loose sand, gravel, and areas with high groundwater levels. Unlike methods that rely primarily on drilling fluid, full casing directly supports the borehole wall, helping reduce the risk of collapse and the inflow of soil and groundwater. By limiting soil loss and loosening of the surrounding ground, full casing helps protect nearby structures and underground utilities. A stable borehole also helps maintain the required pile diameter and geometry while reducing the risk of soil contamination of the concrete.



02

Heavy-Duty Deep Drilling & Large Diameters

Deep, Large-Diameter Drilled Shaft Construction

Nippon Sharyo's RT casing rotators deliver the torque and crowd force needed for deep, large-diameter drilled shafts. Continuous 360° rotation and full-casing support help maintain borehole stability and vertical alignment as drilling progresses through challenging ground conditions.

Proven Performance in Deep Drilling

In a project completed in 2007, five shafts with diameters ranging from 71 to 79 in (1,800–2,000 mm) were installed to depths of up to 253 ft (77 m) below ground level. The shafts passed through clay, coral limestone, coarse sand, and mudstone.

Measured Casing Alignment

At a depth of 196 ft (59.7 m), the measured casing offset was 2 in (51 mm) along the X-axis and 1 in (25 mm) along the Y-axis.

Large-Diameter Capability

Heavy-duty RT casing rotators are designed to accommodate casing diameters of up to approximately 118 in (3,000 mm), supporting large-diameter drilled shaft construction.

Max. dia.:
118in ▶

Over
200ft ▶

Strong Cutting Performance

Cut Through Hard Ground and Underground Obstructions

Continuous 360° rotation and casing bits designed for RT casing rotators deliver powerful cutting performance in hard ground. The bit geometry and arrangement are optimized for efficient cutting, helping the casing advance through boulders, bedrock, buried concrete, existing piles, and other underground obstructions.

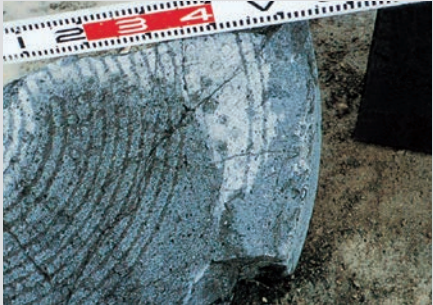


Casing Bit Tip



Obstruction Removal 2m-Thick Diaphragm Wall

Nippon Sharyo's RT casing rotator successfully cut through and removed a 6.6 ft (2.0 m)-thick reinforced-concrete diaphragm wall, demonstrating its powerful cutting capability for large underground obstructions.



Hard-Rock Performance Tested in 30,000 psi Granite

In a rock-cutting performance test, The RT casing rotator penetrated 3 ft (0.9 m) into granite with a uniaxial compressive strength (UCS) of 30,000 psi (207 MPa) in 100 minutes, demonstrating its cutting capability in extremely hard rock.



Automatic Bit-Load Control

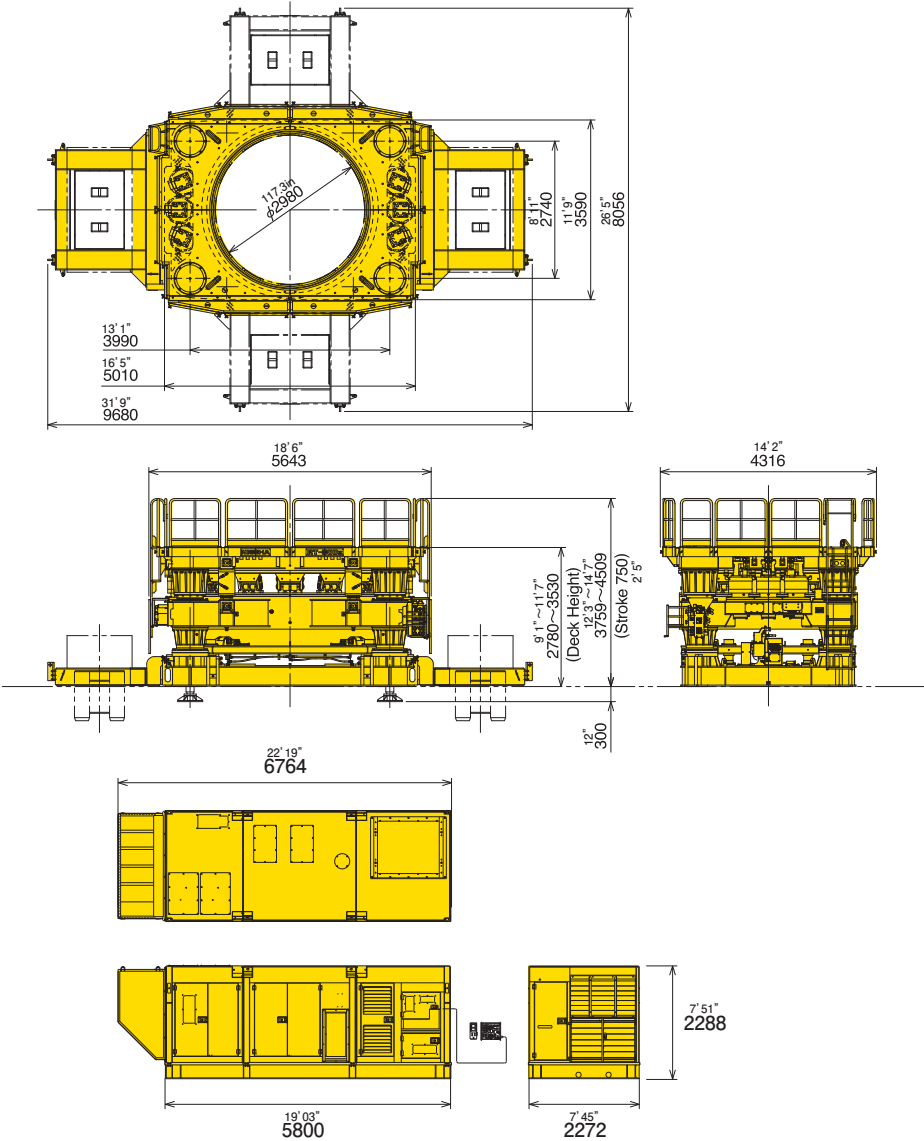
As the casing string becomes longer, its increasing self-weight can place excessive load on the cutting bits. Using pressure-sensor feedback, Automatic Bit-Load Control regulates crowd force and rotation to maintain an appropriate bit load as casing length increases.

RT-300III

Borehole dia.	2000mm-3000mm 78.7in - 118.1in
Extracting force(Normal Emergency)	4020kN(410tf)/4470kN(456tf) 903,731bf/1,004,895lbf
Pushing down force	820kN(84tf)+390kN(40tf) 184,343lbf + 87,675lbf
Thrust jack stroke	750mm 2.4ft
Torque(Normal/*Emergency)	5280/3100/1780kN-m(539/316/182tf-m)*6040kN-m(616tf-m) 3,894,328/2,286,442/1,312,860lbf-ft*4,454,875lbf-ft
Rotation speed	0.6/1.0/1.7min ⁻¹
Weight	53.0 «57.5» ton 116,845lb«126,766lb»

Hydraulic Unit RTP 5-8

Model	Caterpillar C13B
Engine output	EU:Stage V /EPA:Tier 4F
Fuel tank	370 kW / 1800-2100r/min
DEF tank	600L(300L x2) 158.US gal(79.3US gal x2)
Weight	47.2L(12.5 US gal)
	11t(24,251lb)

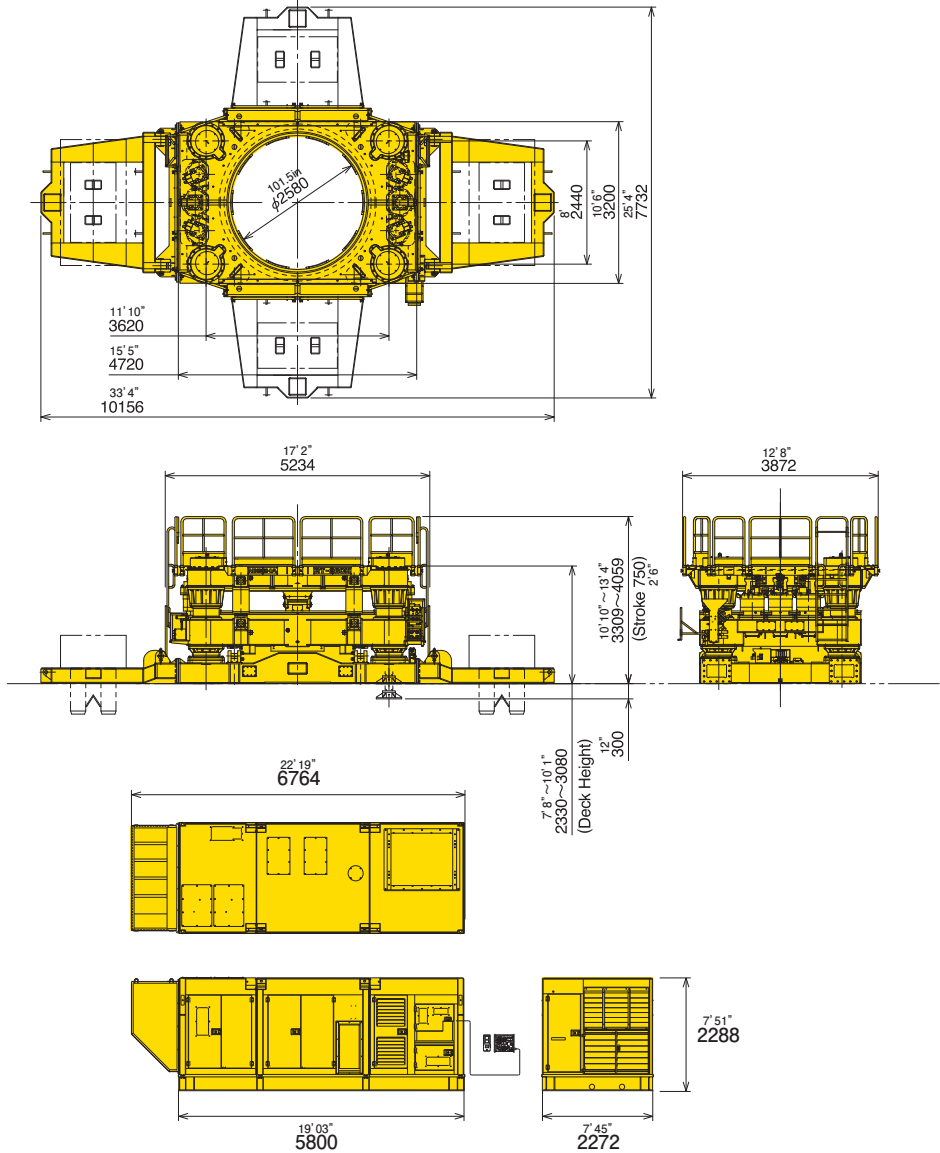


RT-260H

Borehole dia.	1500mm-2600mm 59in - 102.3in
Extracting force(Normal Emergency)	3800kN(388tf)/4340kN(443tf) 854,273bf/975,670lbf
Pushing down force	830kN(85tf)+350kN(36tf) 186,591lbf + 80,931lbf
Thrust jack stroke	750mm 2.4ft
Torque(Normal/*Emergency)	5100/3000/1740kN-m(520/306/177tf-m)*5950kN-m(607tf-m) 3,761,566/2,212,686/1,283,358lbf-ft*4,388,494lbf-ft
Rotation speed	0.6/1.1/1.9min ⁻¹
Weight	46.5 «48.4» ton 102,514lb«106,703lb»

Hydraulic Unit RTP 5-8

Model	Caterpillar C13B EU:Stage V/EPA:Tier 4F
Engine output	370 kW / 1800-2100r/min
Fuel tank	600L(300L x2) 158.US gal(79.3US gal x2)
DEF tank	47.2L(12.5 US gal)
Weight	11t(24,251lb)



RT-200H

Borehole dia.	1000mm-2000mm 39.4in - 78.7in
Extracting force(Normal Emergency)	3450kN(352tf)/3940kN(402tf) 775,590bf/885,747lbf
Pushing down force	590kN(60tf)+250kN(26tf) 132,637lbf + 56,202lbf
Thrust jack stroke	750mm 2.4ft
Torque(Normal/*Emergency)	2950/1740/1010kN-m(301/177/103tf-m)*3130kN-m(319tf-m) 2,175,808/1,283,358/744,937lbf-ft*2,308,569lbf-ft
Rotation speed	0.9/1.5/2.5min ⁻¹
Weight	34.1 «35.8» ton 75,177lb«78,925lb»

Hydraulic Unit RTP 5-8

Model	Caterpillar C13B EU:Stage V/EPA:Tier 4F
Engine output	370 kW / 1800-2100r/min
Fuel tank	600L(300L x2) 158.US gal(79.3US gal x2)
DEF tank	47.2L(12.5 US gal)
Weight	11t(24,251lb)

