

Herrenknecht Vertical

Automated Rig Technology

The exploration of new energy deposits is one of the global challenges for future energy supply. Whether the development of onshore and offshore oil and gas or deep geothermal energy is economically reasonable also depends on the drilling equipment used. Herrenknecht Vertical, a subsidiary of Herrenknecht AG, the market leader in mechanized tunnelling systems, designs and manufactures customized high-quality rigs for drilling, workover and decommissioning, meeting the needs of our customers and their projects. The hydraulic rig concepts for drilling to 8,000 meters incorporate comprehensive, safety-based automation, setting new standards of safety, efficiency and environmental protection. **Automated Rig Technology. Engineered and built for your performance.**



Headquarters in Germany, active worldwide. With more than 40 years of engineering and manufacturing experience, around 5,000 employees and 76 locations within the Herrenknecht Group, we support our customers globally.



HYDRAULIC TOP DRIVES

HIGH PERFORMANCE ROTARY DRIVES

Hydraulic rotary top drives

- › High continuous rotary torque
- › Push and pull capability
- › Low noise emissions
- › Large wash pipe ID
- › Suitable for onshore and offshore applications; arctic and desert versions available (optional)
- › Available as stand-alone unit for conventional rigs with customized guide rail system, hydraulic power pack and remote control stand (optional)
- › Design according to API, CE and ATEX; further certification upon request (optional)
- › Made in Germany



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**AUTOMATED
RIG TECHNOLOGY**

Hydraulic rotary top drives for pulling and pushing operations

Herrenknecht Vertical's hydraulic top drive series, powerful rotary drives for demanding drilling operations, designed for up to 750 metric tons (825 short tons) based on over 40 years of experience in hydraulic drive systems. Our top drives integrate all features for onshore and offshore drilling in oil and gas, as well as for geothermal applications. The entire system is CE-certified and allows high-performance pulling as well as pushing operations. Maximum availability, minimum maintenance requirements and innovative new features are constantly ensuring highest drilling performance for customer's projects.

Key benefits

- › The high power density of the hydraulic system results in high torque capacities of the top drives.
- › The top drive system allows pull and push operations, which is beneficial especially in the upper drilling sections.
- › A unique top drive bearing system with dampening effect – either via the hoisting cylinders or integrated into the top drive design – minimizes required maintenance and servicing costs.
- › The dual-rail dolly system compensates torque and leads it directly into the mast structure.
- › Large tool joints can be handled by the torque wrench system, which also integrates a counter balance system that supports during make-up and break-out operations.

The hydraulic top drives are also available as **stand-alone units** for retrofitting of conventional rigs with state-of-the-art drilling equipment. The package includes a containerized diesel-hydraulic power unit with control system and a remote control stand, which can be integrated into customer's existing driller's cabin. The stand-alone top drives are equipped with a tailor-made guide rail system, which is adapted to the individual derrick design. The modernization packages are suitable for a broad range of different rig types and can be further customized upon request.

All our top drives are thoroughly tested at our **in-house test facility** under full speed, full torque and full load to guarantee maximum quality and performance.

In addition to the hydraulic top drive portfolio, Herrenknecht Vertical also offers **electric top drives** in various sizes. Contact us for more details.



Hydraulic top drive and hoisting dolly at rack & pinion rig

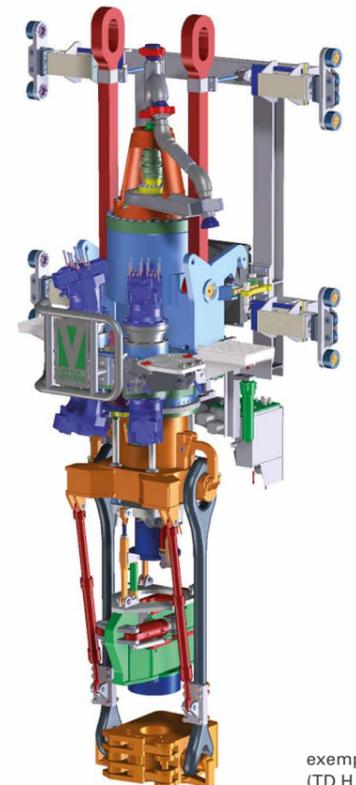
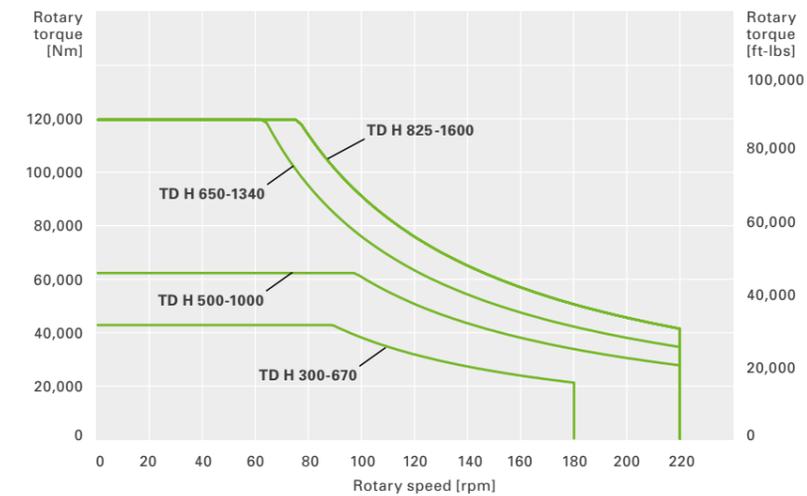
Top drive test facility for hydraulic and electric top drives

Technical specifications

HYDRAULIC TOP DRIVE SERIES

	TD H 300-670	TD H 500-1000	TD H 650-1340	TD H 825-1600
› Max. pull load:	272 mt (300 sht)	450 mt (500 sht)	590 mt (650 sht)	750 mt (825 sht)
› Max. push load:	130 mt (145 sht)	160 mt (175 sht)		250 mt (275 sht)
› Max. rotary speed:	180 rpm at 21,000 Nm (15,500 ft-lbs)	220 rpm at 27,500 Nm (20,300 ft-lbs)	220 rpm at 35,000 Nm (26,000 ft-lbs)	220 rpm at 41,000 Nm (30,250 ft-lbs)
› Max. continuous rotary torque:	42,500 Nm (31,350 ft-lbs) at 88 rpm	62,000 Nm (45,730 ft-lbs) at 97 rpm	120,000 Nm (88,500 ft-lbs) at 60 rpm	120,000 Nm (88,500 ft-lbs) at 80 rpm
› Max. brake torque (intermittent):	100,000 Nm (73,750 ft-lbs)		145,000 Nm (106,950 ft-lbs)	170,000 Nm (125,400 ft-lbs)
› Rated power:	500 kW (670 hp)	800 kW (1,000 hp)	1,000 kW (1,340 hp)	1,200 kW (1,600 hp)
› Link tilt capacity:	4 mt at 1.5 m (8,820 lbs at 4.92 ft)			
› Wash pipe ID:	3"	3½"		
› Type of connection:	API 6% Reg.	API 7% Reg.		API 7% Reg. (opt. 8% Reg.)
› Torque wrench make-up torque:	120,000 Nm (88,500 ft-lbs)		170,000 Nm (125,380 ft-lbs)	200,000 Nm (147,500 ft-lbs)
› Torque wrench max. TJ OD:	9½"		10"	11"
› Weight (approx.):	15.5 mt (17 sht)	20 mt (22 sht)	25 mt (27.5 sht)	28 mt (31 sht)
› Stack-up height:	5.7 m (18.7 ft)	6 m (19.7 ft)		

PERFORMANCE CURVE



exemplary (TD H 500-1000)

Stand-alone hydraulic top drive integrated in a conventional derrick