



EarthPro  
Geothermal

4550/  
4550X

# ASTE~~C~~



**Built to harness the earth's energy**

The Astec EarthPro Geothermal 4550 and 4550X are designed to meet the specialized demands of geothermal system installations. Their superior field mobility, power, and state-of-the-art technology make them ideally suited to high-production drilling applications. They can also be used to drill traditional water wells.

Astec Underground engineers conducted extensive field studies with geothermal system installers and incorporated suggestions by veteran drillers into the design of the Earth Pro Geothermal Drills. They use technology that has made Astec Underground an innovative leader in the horizontal directional drilling industry.



## ENHANCED MANEUVERABILITY

A tethered two-speed ground drive system gives the operator better visibility when loading, unloading, and setting up over casing. CAT™ 315L tracks provide sure-footed traction and fast placement on the jobsite.



## TRACK OR TRUCK

Astec Earth Pro Geothermal Drills are available with tracks (4550X) or as a truck-mounted unit (4550). The unit can be mounted on a variety of trucks so customers may choose their preferred brand or supply their own truck.



### TRIPLE OPERATIONAL CONTROL SYSTEM

In addition to the dual multi-function controls used for standard drill operation, a life jacket is also available to operate all drill functions. A manual valve bank serves as a backup alternative to ensure the drill can be moved to a service position or service center should it be needed.



### AUTOMATED PIPE LOADER

A single operator can drill and trip out 100 ft (30.5 m) of pipe without winch assistance. It can hold up to 30 pieces of 20-foot (6.1 m) pipe. It can drill 4.5 inch (89, 102, or 114 mm) diameter holes. The loader enables hands-free rod rotation.



### BIG AIR

It carries a 1,050-cfm (27 cmm) Sullair compressor with a maximum pressure of 350 psi (24 Bar) to drill deeper and faster and to operate larger hammers.



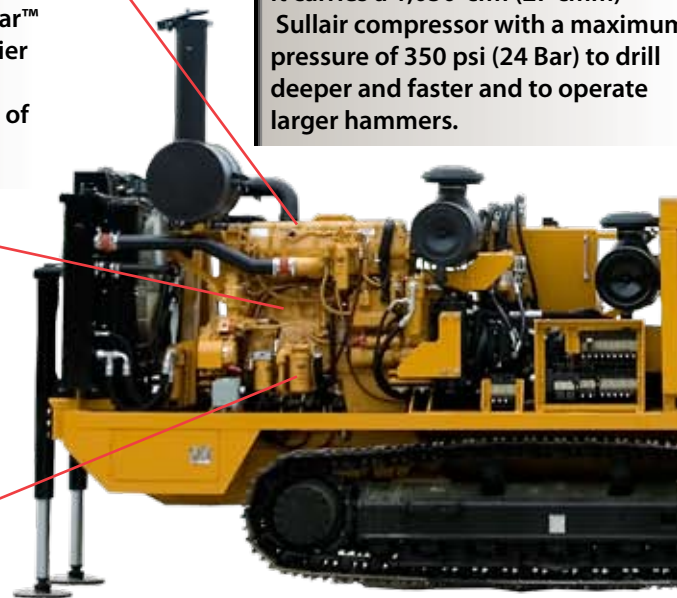
### CAT™ POWER

The drill is powered by a Caterpillar™ C15 ACERT turbocharged diesel Tier 3 Stage IIIA engine that develops 580 horsepower and 1,953 ft.-lbs. of torque.



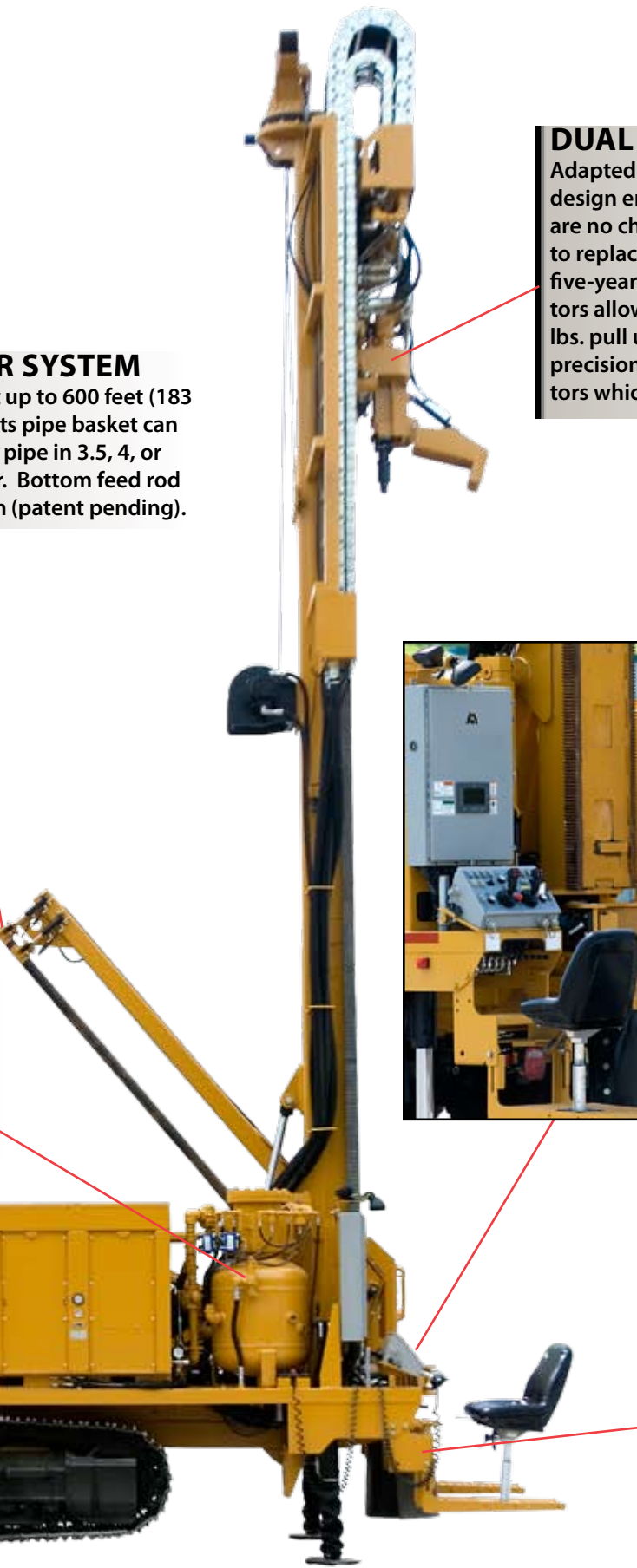
### SINGLE SIDE SERVICE POINTS

All filters, fluid level checks, and fill points are on the same side of the drill near ground level to make monitoring and maintenance quick and easy. A slide out battery tray allows easy access as well.



## R SYSTEM

up to 600 feet (183  
ts pipe basket can  
pipe in 3.5, 4, or  
. Bottom feed rod  
(patent pending).



## DUAL RACK & PINION DESIGN

Adapted from Astec HDD units, this proven design ensures dependable service. There are no chains, cables, or hydraulic cylinders to replace. The rack & pinion are covered by a five-year warranty. The three-speed drive motors allow quick trip times with strong 45,000 lbs. pull up and 22,000 lbs. pull down. The precision drive system features locking motors which eliminate carriage free falls.



## CENTRAL ERGONOMIC CONTROLS

Dual multi-function joystick controls are mounted on a console, which is adjustable for height and angle to reduce operator fatigue. The multi-function LCD display provides information on drill operation in easy-to-understand terms. Digital gauges are in familiar analog style.



## SAFE AND EFFICIENT HYDRAULIC KEY/ VISE TABLE DESIGN

The distinctive table design features a vise breakout system on top for strength, versatility, and safety. The key is located on the bottom for added safety and increases security for downhole tooling.





# SPECIFICATIONS

## DECK ENGINE

- Caterpillar™ C15 Acert turbocharged diesel, Tier 3 Stage IIIA emissions
- 580 hp (433 Kw) @ 2,100 RPM
- 1,953 ft.-lbs. (2,647 N-m) @ 1,400 RPM
- Heavy-duty 2-stage air cleaner
- 24-volt DC electrical system
- Cooling system — up to 125° F ambient (52° C)

## FAN DRIVE

Hydraulic driven on-demand fan drive

## FUEL CAPACITY

Single bolt-on tank ..... 200 gal. (757 L)  
 Operation ..... 32.7 hours at full horsepower

## COMPRESSOR

Sullair 2022/1211  
 Maximum flow ..... 1,050 cfm (27 cmm)  
 Maximum pressure ..... 350 psi (24 Bar)  
 Type ..... Two-stage rotary screw  
 Drive ..... Mechanical drive from engine PTO  
 Clutch ..... Electro/mechanical actuated  
 Closed loop piston pumps  
 Accessory ..... Open loop

## HYDRAULIC SYSTEM

Single bolt-on tank ..... 100 gal (378 L)  
 Carriage ..... Closed loop piston pumps  
 Rotary head ..... Closed loop piston pumps  
 Accessory ..... Open loop high pressure system  
 Filtration, open loop ..... 5 micron  
 Filtration, return ..... 5 micron  
 Filtration, charge ..... 5 micron

## UNDERCARRIAGE

Make and model ..... CAT™ 315L  
 Speed, low ..... 1.3 mph (2.1 kph)  
 Speed, high ..... 2.2 mph (3.5 kph)  
 Track control ..... Independent proportional electric over hydraulic  
 Control type ..... Remote with warning alarm  
 Brakes ..... Spring applied hydraulic release (SAHR)  
 Grouser ..... 20-in. (500 mm) wide, triple grousers  
 Guards ..... Full-length track guiding guards

## OUTRIGGERS

Independently controled outriggers  
 Front, two 4" (102 mm) bore x 3.5" (89 mm) rod x 48" (1,220) stroke  
 Rear, two ..... 4" (102 mm) bore x 3.5" (89 mm) rod x 36" (914) stroke

## MAST

Unitized tubular structure with hydraulic actuated locks  
 Length ..... 33 ft., 9 in. (10,287 mm)  
 Head travel ..... 25 ft. (7,620 mm)  
 Table type ..... Split type design  
 Table ..... Swing out rear and retractable front  
 Table capacity ..... up to 12 in. (305 mm)  
 Breakout wrench ..... 3 to 14 in. (76 to 356 mm) diameter  
 Breakout wrench torque ..... 9,000 ft.-lbs. (12,202.4 N-m)  
 Wrench swing ..... 30 degrees total  
 Wrench clamp force ..... 58,000 lbs. (258 Kg)

## FEED SYSTEM

Rack & pinion drive system with three speeds  
 Pull up capacity ..... 45,000 lbs. (20,412 Kg)  
 Pull down capacity ..... 22,000 lbs. (10,000 Kg)  
 Speed, low ..... 107 fpm (33mpm)  
 Speed, medium ..... 160 fpm (49 mpm)  
 Speed, high ..... 214 fpm (65 mpm)

## TOP HEAD ROTATION

Sliding top head design with floating sub  
 Three-speed, single-reduction, heavy-duty gear box  
 Speed, low ..... 0 to 95 rpm  
 Speed, medium ..... 0 to 143 rpm  
 Speed, high ..... 0 to 190 rpm  
 Torque ..... 5,000 lb-ft (6,780 N-m)  
 Water course ..... 2.0" (51 mm)

## PIPE HANDLING SYSTEM

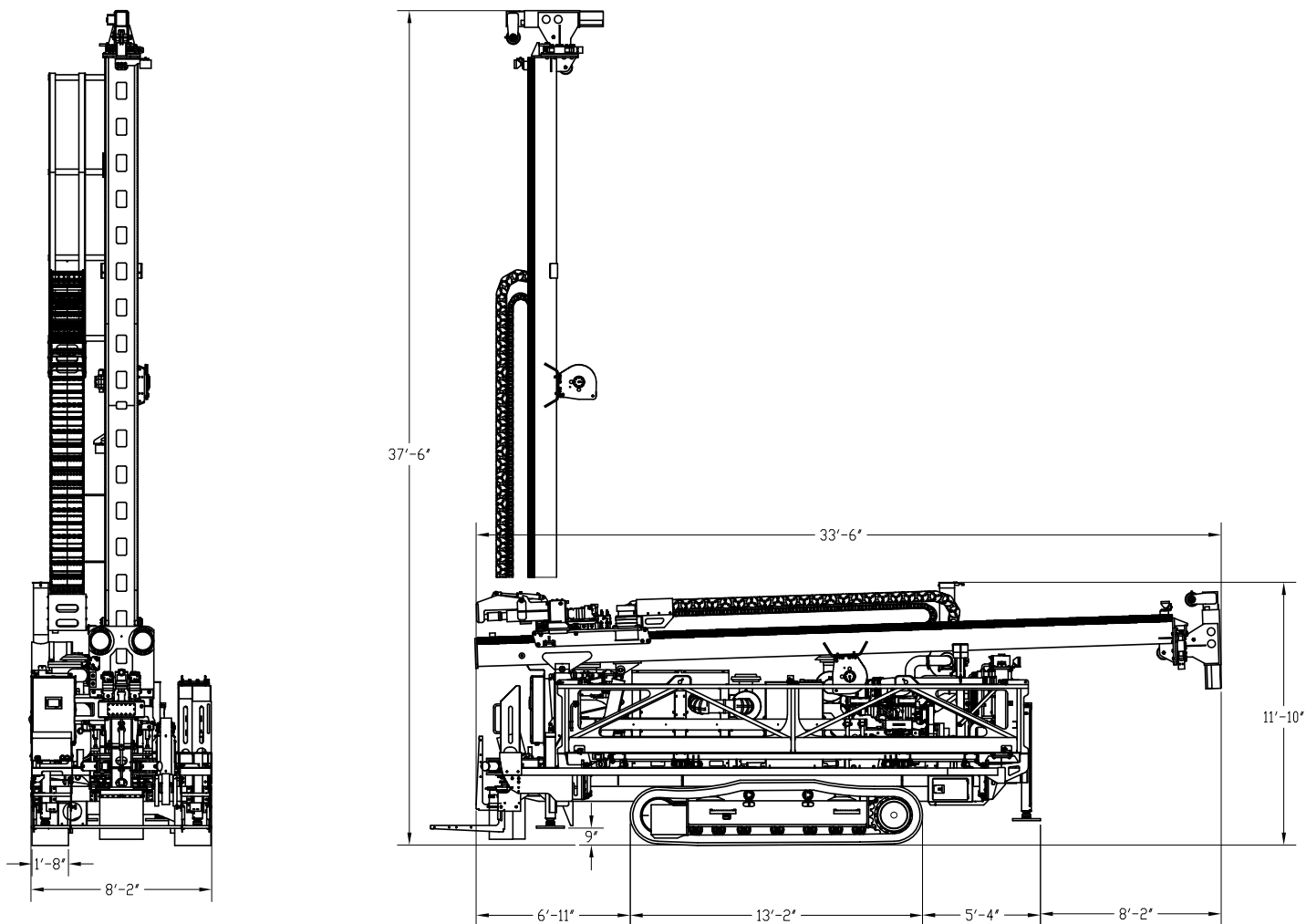
Patented automatic pipe handling system

## DRILL PIPE AND BASKET

Basket ..... 600 ft (183 m) capacity each  
 Pipe length ..... 20 ft (6.1 m)  
 Pipe diameter ..... 3.5" (89 mm) pipe  
 Pipe diameter ..... 4.0" (102 mm) pipe  
 Pipe diameter ..... 4.5" (114 mm) pipe

## WINCH

Hydraulic-drive planetary winch with spring-applied hydraulic release brakes  
 Standard capacity ..... 15,000 lb (6,800 Kg)



## SPECIFICATIONS

Continued from inside

Cable length ..... 150 ft (46 m)  
 Cable size ..... 5/8" (16 mm) diameter  
 Speed ..... 82 fpm (25 mpm)

- Lincoln tool lubricator ..... 0.2 gpm (76 Lpm) and 350 psi 24 bar
- Tool lubricator tank ..... 18 gal. (68 L)
- Gardner Denver Piston Pump ..... 5 x 6 pump
- Aluminum outrigger pads ..... 24 in. (610 mm)
- Extended CAT™ engine warranty
- Extended compressor warranty
- Sandline winch
- 12,000 lb (5,443 Kg) winch
- 18,000 lb (8,165 Kg) winch

### ADDITIONAL STANDARD ITEMS

- Hammer holder
- Six 24V DC work lights
- 12V DC power supply
- Tie down hooks
- Tow hooks

### OPTIONAL EQUIPMENT

- Bean injection pump ..... 20 gpm (76 Lpm) @ 1,500 psi (103 bar)
- Mission centrifugal mud pump ..... 3 x 4 pump

### APPROXIMATE WEIGHT AND DIMENSIONS

Weight ..... 50,000 - 60,000 lbs. (22,680 - 27,215 Kg)  
 Width ..... 8 ft., 2 in. (2,490 mm)  
 Height ..... 11 ft., 8 in. (3,556 mm)  
 Length ..... 37 ft. (11,278 mm)

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