



## HTC-500 Complete Bench / Hydraulic Test Center

The Hydraulic Test Center (HTC) is a versatile machine designed to test heavy-duty, off-highway hydraulic components. The 500 hp (373 kW) HTC Complete Bench is for the dealer that services components from a predominately larger machine size mix such as large mining machines and large excavators. The Complete Bench offers full functionality to test all types of pumps and motors including: transmissions, hydraulic motors, hydraulic cylinders, valve blocks, torque converters, open and closed loop pumps.



HTC-500 Complete Bench with High Flow Supply shown (image may vary slightly).

### Pump and Motor Test Package

- Two (2) case drain flow circuits
- High pressure filtration with flow straightener
- Load sensing pump circuit
- Component cooling loop
- Energy recovery - reduces incoming power required for testing of pumps
- Continuous 6,000 psi (413 bar) auxiliary pump

### HTC Key Features

- Remote monitoring - the operator is removed from the test environment
- DynPro<sub>2</sub> data acquisition and control system
- Dynamometer mode allows testing of a motor as a motor (not a pump)
- Effortless contamination control to ISO 20/16/13 (per Cyclic Stabilization Test SAE ARP4205)
- No de-rating the test bench in 50 Hz countries

### Specifications

- 500 hp (373 kW) electric motor
- 365 gal. (1,380 l) component oil tank with additional 100 gal. (379 l) separate machine reservoir
- High capacity 20,000 lb (9,072 kg) work support with integral sump
- Rpm range: 0 - 3,400
- Peak torque: 1,738 lb-ft (2,356 N)
- Includes torque load cell
- Adjustable driveline height: 16 - 77 in. (41 - 196 cm)
- Four (4) PWM outputs and two (2) solenoid outputs for component control
- Two (2) variable flow supply circuits
- Reduced voltage soft-start motor starter
- Cooling tower cooling: 50 gpm (189 lpm) at 90°F (32°C), inlet water at 40 psi (3 bar) and 120°F (49°C) oil temperature (40% of installed hp capacity)

## Specifications (Continued)

### Heated Reservoir

- 20 hp (15 kW) heater in component reservoir

### Component Cooling Loop

- Allows testing of larger closed loop pumps
- 80 gpm to 425 psi (303 lpm to 30 bar)

### Positive Displacement Work Table Pump

- Predictable and reliable work table scavenging
- Work table size 144 x 76 in (366 x 193 cm)
- Volume capacity minimum 50 gal. (189 l); maximum 175 gal. (662 l)
- Load capacity 20,000 lb (9,072 kg)

### Hydraulic Oil

- Hydrocarbon (Buna compatible)
- ISO grade VG32 or VG46
- Minimum viscosity 66 SUS (12 mm<sup>2</sup>/s) through temperature range
- Maximum Temperature 180°F (82°C)
- Total oil volume required 550 gal. (2,100 l)

### DynPro<sub>2</sub> Data Acquisition & Control System

1-PC with 2 single monitors

#### Inputs

- 24 analog input channels for pressures, temperatures, voltage, etc.
- 12 frequency inputs for flow and speed
- Dual LCD modules for displaying channel names, ranges, etc.

#### Outputs

- 4 PWM outputs 0-3,000 mA
- 2 solenoid outputs 12 VDC or 24 VDC to 3 amps
- 1 optical tachometer

#### Network

- Wireless router
- USB to PC (for Transmission Analyzer)
- Transmission Control Module (TCM) capable
- Ethernet

#### Internals of Machine

- All instruments available through the DynPro<sub>2</sub> interface (no mechanical gauges)
- Digital control of all prominent controls required for testing
- Manual controls of setup functions and less common controls three (3) for testing

## Specifications (Continued)

### Continuous Torque

Shaft	lb-ft (N)	RPM	Baseline RPM*
1	1,255 (1,700)	3,400	1,806
2	1,738 (2,356)	2,125	1,129

\*Torque begins to reduce.

### Electrical Supply (50 Hz or 60 Hz, 3-phase)

Amperage	Amps	Main Disconnect Sized Amp
400 VAC	728	900
460 VAC	633	800
575 VAC	506	700

Can be configured for most 3-phase AC electrical supplies.

### Pressurized Oil Supply

Qty.	gpm (lpm)	psi (bar)	Notes	Filtered
1	0 - 82 (0 - 310)	350 - 6,000 (24 - 414)	Variable pump	No
1	0 - 34 (0 - 129)	up to 870 (up to 60)	Two control strategies: control pressure, control flow	Yes
1	0 - 5.5 (0 - 20)	60 - 7,250 (4 - 500)	Operation above 5,000 psi (345 bar) by itself	No
1	0 - 5.5 (0 - 20)	75 - 5,000 (5 - 345)	Operates simultaneously 5,000 psi (345 bar) and below	Yes
3	0 - 3 (0 - 11)	0 to 1,100 (0 to 75)	Operates simultaneously 5,000 psi (345 bar) and below	Yes
1	0 - 12 (0 - 45)	up to 200 (up to 14)	Lube for bearings	Yes

## Pump and Motor Test Package

A built-in manifold provides the capability of testing closed loop hydraulic circuits without having to make time-consuming plumbing changes. This allows for testing both sides of a hydrostat transmission or closed looped pump simultaneously. This circuit also includes a high pressure filter and component cooling loop circuit. Another manifold allows the setting of margin pressure/standby pressure on load sensing pumps. The last feature in this package are 2 case drain flow meters.

### Diagnostic Flow Loops

Flow Loops	Qty.	gpm (lpm)	Notes
Rectifier flow loop with high pressure filtration	1	5 - 160 (19 - 606)	non-loadable, 6,000 psi (414 bar)
Flow Loop 1	1	5 - 210 (19 - 795)	non-loadable, 6,000 psi (414 bar)
Flow Loop 2	1	5 - 160 (19 - 606)	loadable, 6,000 psi (414 bar) includes margin valve
Flow Loop 3	1	5 - 210 (19 - 795)	loadable, 6,000 psi (414 bar)
Case Drain 1	1	0.5 - 5 (2 - 19)	non-loadable, 70 psi (5 bar)
Case Drain 2	1	2 - 20 (8 - 76)	non-loadable, 70 psi (5 bar)

The HTC Series of Hydraulic Test Centers offers improved features and benefits with an emphasis on safety, performance, ergonomics and sustainability.

## HTC Features and Benefits

### Improved Filtration and Maintenance

- Effortless contamination control to ISO 20/16/13 (per Cyclic Stabilization Test SAE ARP4205)
- Greater equipment longevity
- Component cleanliness verified for warranty
- All filter changes are done from the floor in just two (2) locations
- Only four (4) replacement filter elements
- Additional filtration for supply circuits

### Consistent Global Performance

- Same machine performance regardless of utility frequency
- No de-rating the test stand in 50 Hz countries

### Dynamometer Mode

- Allows testing of a motor as a motor (not a pump)

### Two (2) Variable Flow Supply Circuits

- Simplified plumbing for split flow transmissions

### Positive Displacement Work Table Pump

- Predictable and reliable work table scavenging

### DynPro<sub>2</sub> Data Acquisition and Control System

- Collect setup and testing information from one location
- Automated testing with pass/fail criteria
- Four (4) PWM outputs and two (2) solenoid outputs for component control

### Operator Safety and Ergonomics

- DynPro<sub>2</sub> removes the operator from the testing environment
- Functional decking and steps
- Built-in air tool supplies

### Driveline Improvements

- Test larger transmission and pumps with increased torque option
- A 40% increase in torque capacity over competitor's offering
- Driveline can be moved without power unit on
- Safer support for driveline with lead screws
- Standard driveline height 77 in (196 cm)
- Test tall transmission and drop box assemblies

## HTC Features and Benefits (Continued)

### Component Cooling Loop

- Allows testing of larger closed loop pumps
- 80 gpm to 425 psi (303 lpm to 30 bar)

## Optional Accessories and Services

### Accessories

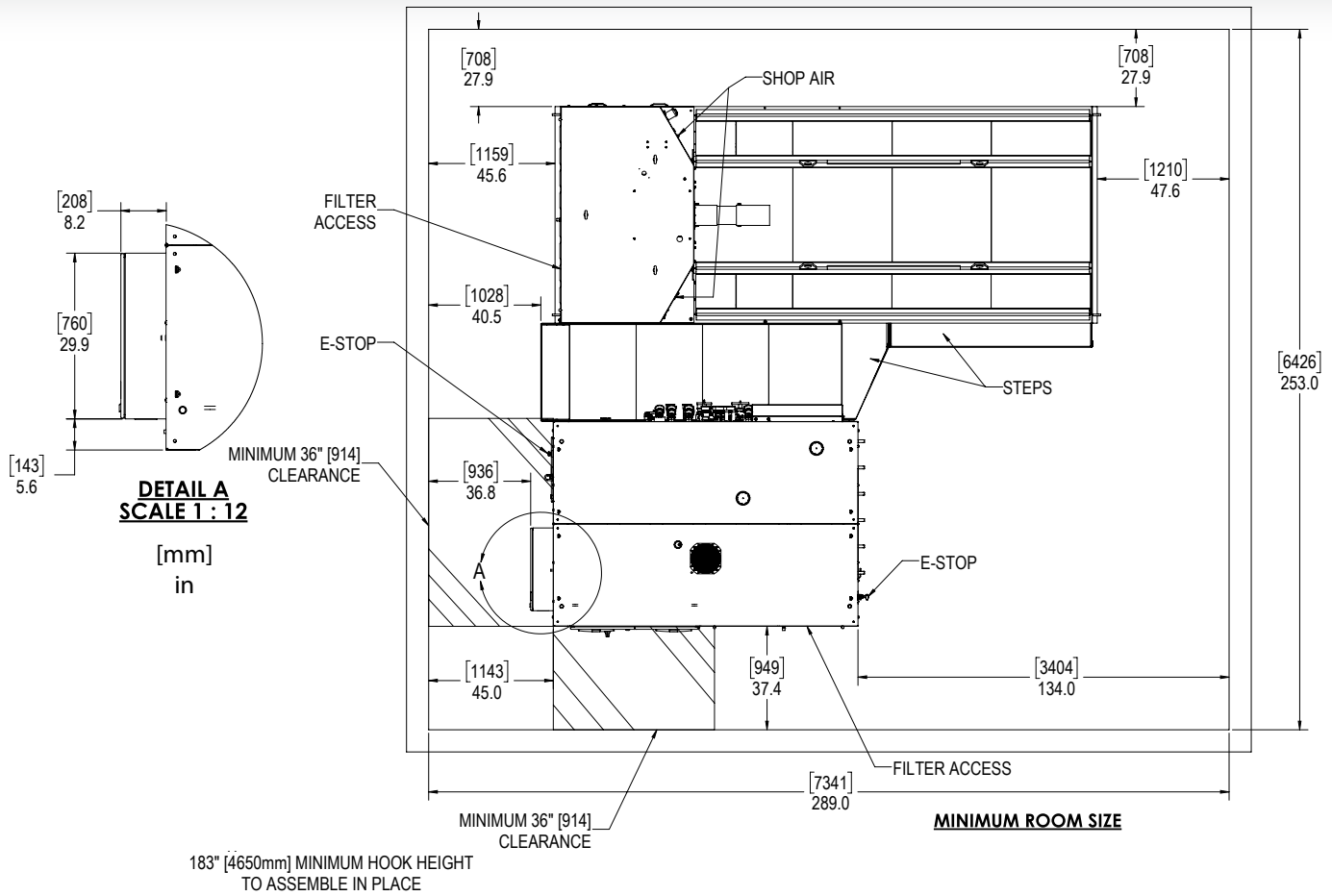
- Air-Cooled Eddy Current Load Stand
- Camera System
- CE Marked
- Contamination Monitoring
- E-Stop Button Kit
- Fault Beacon Light with Siren
- Instrumentation Package
- Monitor Mounting Bracket
- Oil Mist Collector
- Port for Work Table
- Tooling and Adapters for Component Testing
- Surface Pro Tablet
- Workstation
- Work Table (for operator)

### Services

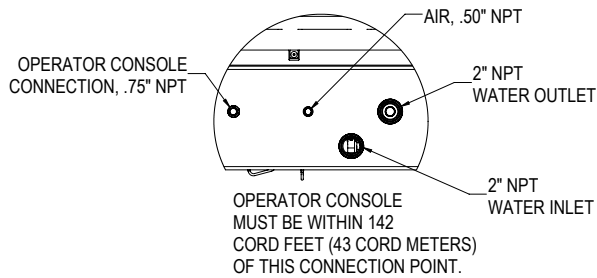
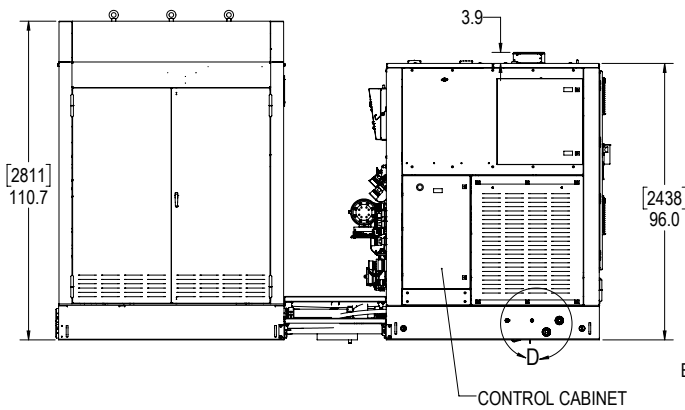
- Design, Project and Construction Management
- Onsite Support
- Rebuild and Remanufacturing
- Shop Level Drawings Review



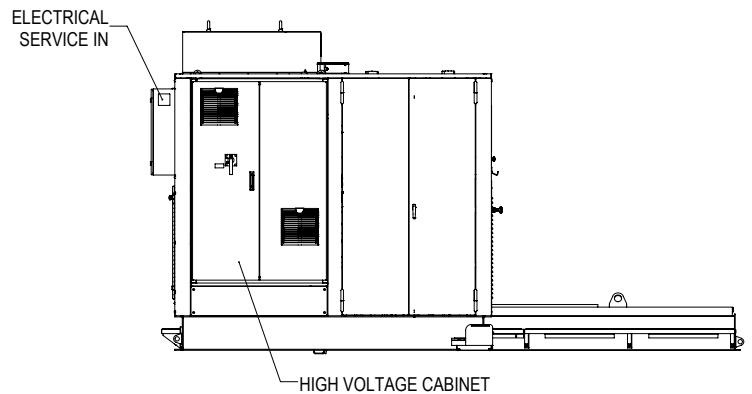
DynPro<sub>2</sub> Sensor Box with Instrumentation Package Accessory



Shipping Weight (approximate): 35,000 lb (15,875 kg)  
Operator's Station or Control Room (not shown) is recommended to be outside of the test cell.



**DETAIL D**  
**SCALE 1 : 8**



**Everything you need to succeed**

