

## DESCRIPTION

The Heavy-Duty Power Steering Module End-of-Line Test Stand is designed to perform validation and functionality testing on various types of hydraulic power steering modules. This highly configurable test bench is intended for final verification testing of every module that comes off the production line, under a variety of test conditions dictated by custom OEM specifications.

The input side of the test bench is driven by a low speed servo motor, with precise position control. An inline torque sensor is included for accurate torque feedback, as well as a torque-limiting clutch for component safety. The load configuration has another AC motor that is mated to a high ratio gearbox. A disengagement clutch is included for testing no-load conditions. Another inline torque sensor and torque-limiting clutch are part of the load driveline. The power steering module under test is connected on a custom designed fixture that fits onto a universal mounting surface of the test stand. The unit is operated by a hydraulic power pack with servo controls, that directs the test fluid at the designated pressure to the appropriate ports. The test fluid is taken from the storage reservoir, which also provides heating and cooling options.

The test stand is managed by a PC-based control system, with an industrial touch screen monitor and keyboard interface. The integrated data acquisition system along with the test data control and management software are responsible for control, acquisition, monitoring and logging of all analog and digital input and output channels.

Test Stand Specifications	
TEST BENCH	
Footprint (L x W x H) [Largest Dimensions]	5.0m(196") x 2.6m(102") x 2.0m(78")
Main Power	600VAC, 3Ø, 50/60Hz, 100A
MAIN DRIVE MOTOR	
Power	7.5kW (10HP) AC Motor
LOAD MOTOR	
Power	7.5kW (10HP) AC Motor
Gearbox	200:1 Ratio
DRIVE TORQUE MEASUREMENT	
Type	Rotary Contactless
Range	0 - 50N·m (37ft·lbs)
Accuracy	±0.1% of Full-Scale Range
LOAD TORQUE MEASUREMENT	
Type	Rotary Contactless
Range	0 - 7500N·m (5555ft·lbs)
Accuracy	±0.1% of Full-Scale Range
TEST MEDIUM	
Fluid	Power Steering Fluid
Volume	60L (16gal)
Temperature Range	30 - 120°C (86 - 248°F)
Filtration	10µm
HYDRAULIC MEASUREMENT SYSTEM	
Pressure Range [Gage]	0 - 103BAR (0 - 1,500psi)
Pressure Accuracy	±0.25% of Full-Scale Range
HYDRAULIC PRESSURE SOURCE	
Maximum Pressure	103BAR (1,500psi)
Maximum Flow	7.5L/min (2 gal/min)



## DISCLAIMER

Specifications presented in this datasheet are for informational purposes only.

All specifications can be customized to specific customer requests.

Please contact ATA for additional information or questions regarding your application.

## OPTIONS SELECTED

- ✓ PID control of load torque
- ✓ Output shaft disengagement via electromagnetic clutch for no-load testing
- ✓ PID control of hydraulic fluid temperature
- ✓ Interfacing to different shaft types and orientations via custom fixture design
- ✓ Quick-connect fittings for fast part loading
- ✓ Full manual control of all hardware features through custom software interface
- ✓ Automated results generation through pre-written test scripts

## FEATURES

- ✓ Accurate position and speed control of the power steering module input shaft
- ✓ High-frequency response of torque feedback
- ✓ Control and measurement of hydraulic pressure
- ✓ Safety clutch to protect against part seizure
- ✓ Backup pressure relief valves to protect against over-pressure conditions
- ✓ Vibration isolation of driveline components
- ✓ Laser alignment of input and output drive axes
- ✓ Anodized aluminum extrusion profiles and polycarbonate plastic for operator safety
- ✓ Oil pan to absorb any accidental spills

## RESULTS OUTPUT

- ✓ Static and dynamic test results for Heavy-Duty Power Steering Module, defined by custom OEM specifications
- ✓ Measurement of physical parameters:
  - Position (Angle)
  - Speed
  - Torque
  - Temperature
  - Pressure
- ✓ Prewritten test procedures and results generation for numerous standardized performance tests, such as:
  - Total Angle of Rotation
  - Gear Ratio
  - Idle Torque
  - Poppet Adjustment
  - Poppet Functionality
  - Function Test
  - Performance Test
  - Free Clearance
  - Characteristic of Force
  - Steering Sensitivity
  - Leakage
  - Return Ability
  - Pressure Drop

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