

DESCRIPTION

The Wet Clutch Assembly Performance & Durability Test Stand is designed as a cost effective solution to perform verification and performance testing on a particular type of clutch system. The test bench integrates reliable and efficient technology that aids design engineers to test the performance, versatility and durability of wet clutches under precisely simulated test conditions.

At the heart of the test bench is a medium speed AC motor that is run in speed mode, and is used as the input to the drive side of the clutch under test. An inline torque sensor is included for accurate torque feedback. An additional braking unit is used to create a load resistance on the output side of the clutch. The load unit is a water brake with a closed circuit water conditioning system. Another inline torque sensor provides feedback of the output load. The clutch under test is mounted on a custom test head, with three different hydraulic fluid supply ports. A hydraulic power pack with servo control valves is used to direct pressure to the appropriate ports, based on the type of test being carried out. The total flow rate going to all the clutch ports is measured. The test fluid storage reservoir allows for temperature control of the oil.

The test stand is managed by a PC-based control system, with an industrial touch screen monitor interface. Along with the onboard data acquisition system and the custom rotational component test software, it allows for control, acquiring, monitoring and logging of all analog and digital input and outputs.

Test Stand Specifications	
TEST BENCH	
Footprint (L x W x H)	2.6m(102") x 2.0m(78") x 2.0m(78")
Main Power	240VAC, 3Ø, 60Hz, 100A
MAIN DRIVE MOTOR	
Power	7.5kW (10HP) AC Motor
Speed	0 - 6,000RPM (±1RPM)
LOAD UNIT	
Type	Water Brake
Power	10kW (13HP)
TORQUE MEASUREMENT (DUAL)	
Type	Rotary Contactless
Range	0 - 100N·m (74ft·lbs)
Accuracy	±0.1% of Full-Scale Range
TEST MEDIUM	
Fluid	Clutch Fluid
Volume	40L (10gal)
Temperature Range	30 - 150°C (86 - 302°F)
Filtration	10µm
HYDRAULIC MEASUREMENT SYSTEM	
Outlet Pressure [Gage]	0 - 17BAR (0 - 230psi)
Outlet Pressure Accuracy	±0.25% of Full-Scale Range



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

- ✓ Hydraulic "low" and "direct" clutch activation via lubrications lines
- ✓ Manual or automatic load torque control
- ✓ PID control of test fluid temperature
- ✓ Manual clamping mechanism for extremely quick part under test switchovers
- ✓ Easy side access to clutch assembly with wide test bay doors on both sides of the test stand
- ✓ Safety door interlock to restrict operator access to test bay area during test execution
- ✓ Automated results generation through pre-written test scripts

FEATURES

- ✓ Accurate input side speed control
- ✓ Accurate output side load control
- ✓ High-frequency response of drive and load side torque feedback
- ✓ Precise test fluid temperature control
- ✓ Measurement of pressure and flow rate
- ✓ Backup pressure relief valve to protect against over-pressure conditions
- ✓ Vibration isolation of driveline components
- ✓ Anodized aluminum extrusion profiles and polycarbonate plastic for operator safety
- ✓ Integrated drip pan to absorb accidental spills
- ✓ Full manual control of all hardware features through custom software interface

RESULTS OUTPUT

- ✓ Wet clutch assembly performance results as per custom OEM specifications
- ✓ Measurement of physical parameters:
 - Speed
 - Torque
 - Temperature
 - Pressure
 - Flow Rate
- ✓ Prewritten test procedures and results generation for several tests, such as:
 - Continuous Slip Test
 - Dynamic Coefficient of Friction
 - Clutch Efficiency

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