

# MTS D-Series AC/DC Motor Test Systems 300-1000 kVA



## Testing Applications

Perform load and no-load testing on all types of AC and DC motors

- **Economical** motor testing **solution**
- All **controls** and **instrumentation** contained in a **single, industrial grade cabinet**
- **Full** voltage **regulation**



**Model MTS750R-600D  
with optional Swivel Jib Boom**



## Design and Safety Features

- Main Circuit Breaker, Transient Protection, Output Overload Detection Circuits, Zero Start Interlock and Ground Fault Detection are standard features
- Control power circuit breaker with indicator
- A motorized screw and gear drive system is used for varying the output voltage on each tap from zero to 100% of full tap voltage
- Motor-controlled output tap selector switch
- Non-Contact Tachometer (RPM Meter)
- Unit is capable of drawing up to 200% of rated tap current for 2 minutes
- 5 Amp ground fault detection circuit with indicator and reset button
- Transient protection on all meters and relays including numerous built-in overload devices for complete unit and operator protection
- Synchronous Motor Shorting Switch
- Field undercurrent protection with bypass
- Emergency Off mushroom switch
- Each unit is equipped with a flashing red lamp when output is energized, external interlock, and warning circuit provisions
- Cabinet is provisioned for lifting via forklift or crane
- Jacks for twist-lock plugs are used on the AC and DC supplies with 15' (4.5 m) output cables
- Operation/maintenance manual
- Convenient meter calibration

## AC Output Supply

The AC supply includes 7 output voltage taps. The AC Power, DC Armature, and DC Field supplies are adjustable from near zero to 100% of rating.

To reduce high inrush currents, the output voltage is controlled by means of a Column-Type Variable Transformer designed and manufactured by PHENIX for this purpose. The PHENIX CTVT utilizes carbon rollers for current collection to eliminate the problems associated with sliding contacts. The PHENIX CTVT is designed with a low voltage difference (less than 0.7 V between adjacent turns to provide very high resolution on the output. The unique screw and gear drive system provides a superior and long lasting drive system.

## Controls and Instrumentation

Complete instrumentation is provided for definitive measurement of electrical characteristics of motors under test (3-phase metering, VM, CM, Watt, VARS, KVA, Power Factor). All metering is displayed on the meter module and digital panel meters, and have accuracy of +1.0% F.S. for each tap rating.

## Testing Software

The control system combined with our testing software create a very user-friendly system which provides complete documentation and reporting for each motor tested. WINMETS2 software is included.

### WINMETS2 Software Meters Screen Display and Sample Test Report



Phenix Technologies					
75 Speicher Drive Accident, MD. 21520 301-746-8118					
Customer:	Phenix Technologies 75 Speicher Drive Accident, MD. 21520	Contact:	Kevin Margroff 301-746-8118	Date:	9/26/2006 2:33:08 PM
Job Number:	Sep25-01	Voltage:	460		
Serial No:	368-92834-71	Current:	116		
Manufacturer:	Toshiba	Horsepower:	35		
Model No:	Vertical Pump	RPM:	1800		
Type:	1-Phase Synchronous	Power Factor:	0.987		
Frame:	T-type(00)	Efficiency:	0.756		
Enclosure:	Shell	Field V:			
Poles:	A, B, C	Field A:			
		0 %	25 %	50 %	75 %
		100 %	125 %	150 %	
A-B VOLTS	480	462	461	459	459
B-C VOLTS	459	460	460	460	460
C-A VOLTS	461	461	461	460	460
A AMPS	67.9	99.3	119.3	137.1	137.1
B AMPS	65.7	99.6	118.9	136.2	136.2
C AMPS	69.3	99.9	120.2	137.8	137.8
Kwatts	10.2	34.7	57.3	64.5	
RPM	1500	1758	1783	1775	
H.P.	0	44.8	74.7	110.4	
TORQUE	0	201	312	350	
EFFICIENCY	0.189	0.438	0.628	0.775	
P.F.	N/A	0.963	0.973	0.975	
Notes: This is a sample load test report.					
Tested By: _____			Date: _____		

MODEL	MTS300R-240D		MTS500R-400D		MTS750R-600D		MTS1000R-800D		
<b>APPROX. MAXIMUM TEST CAPABILITY</b>	AC Motors	DC Motors	AC Motors	DC Motors	AC Motors	DC Motors	AC Motors	DC Motors	
	Load	300 HP	240 HP	500 HP	480 HP	750 HP	700 HP	1000 HP	860 HP
	No-Load	1500 HP	1200 HP	2500 HP	1920 HP	3750 HP	2800 HP	5000 HP	3400 HP
Note: Actual capability may vary with motor design.									
<b>INPUT POWER SUPPLY*</b>	Main Power	400 VAC, 480 A, 3-PHASE 415 VAC, 460 A, 3-PHASE 480 VAC, 400 A, 3-PHASE 600 VAC, 320 A, 3-PHASE 50 or 60 Hz (one must be specified)		400 VAC, 790 A, 3-PHASE 415 VAC, 765 A, 3-PHASE 480 VAC, 660 A, 3-PHASE 600 VAC, 530 A, 3-PHASE 50 or 60 Hz (one must be specified)		400 VAC, 1310 A, 3-PHASE 415 VAC, 1262 A, 3-PHASE 480 VAC, 1091 A, 3-PHASE 600 VAC, 873 A, 3-PHASE 50 or 60 Hz (one must be specified)		400 VAC, 1747 A, 3-PHASE 415 VAC, 1683 A, 3-PHASE 480 VAC, 1455 A, 3-PHASE 600 VAC, 1164 A, 3-PHASE 50 or 60 Hz (one must be specified)	
	Control Power	120 VAC, 20 A, 1-PHASE, 60 Hz 220-230 VAC, 15 A, 1-PHASE, 50 Hz (one must be specified)			120 VAC, 20 A, 1-PHASE, 60 Hz 220-230 VAC, 15 A, 1-PHASE, 50 Hz (one must be specified)				
<b>AC OUTPUT</b>	TAP	300 KVA		500 KVA		750 KVA		1000 KVA	
	1	≈0-240 VAC	400 AAC	≈0-480 VAC	601 AAC	≈0-480 VAC	900 AAC	≈0-480 VAC	1200 AAC
	2	≈0-480 VAC	361 AAC	≈0-600 VAC	481 AAC	≈0-600 VAC	721 AAC	≈0-600 VAC	962 AAC
	3	≈0-600 VAC	289 AAC	≈0-1200 VAC	240 AAC	≈0-1200 VAC	361 AAC	≈0-1200 VAC	481 AAC
	4	≈0-1200 VAC	144 AAC	≈0-2300 VAC	125 AAC	≈0-2300 VAC	188 AAC	≈0-2300 VAC	251 AAC
	5	≈0-2300 VAC	75 AAC	≈0-3300 VAC	87 AAC	≈0-3300 VAC	131 AAC	≈0-3300 VAC	175 AAC
	6	≈0-3300 VAC	52 AAC	≈0-4160 VAC	70 AAC	≈0-4160 VAC	104 AAC	≈0-4160 VAC	139 AAC
	7	≈0-4160 VAC	42 AAC	≈0-7200 VAC	40 AAC	≈0-7200 VAC	60 AAC	≈0-7200 VAC	80 AAC
<b>DC OUTPUT</b>	Armature	240 KW ≈0-600 VDC 400 ADC		400 KW ≈0-750 VDC 533 ADC		600 KW ≈0-750 VDC 800 ADC		800 KW ≈0-750 VDC 1066 ADC	
	Field	≈0-300 VDC 40 ADC		≈0-350 VDC 115 ADC		≈0-350 VDC 171 ADC		≈0-600 VDC 166 ADC	
	Ripple	≤5%			≤5%				
	Regulation	-10%			-10%				
	<b>DUTY CYCLE</b>	1 hour ON / 1 hour OFF at 100% of rated tap current 2 minutes at 200% of rated AC tap current for motor starting							
<b>DIMENSIONS (approx.)</b>	104" L x 84" W x 105" H without boom		104" L x 84" W x 115" H without boom		110" L x 90" W x 115" H with boom		131" L x 105" W x 118" H with boom		
<b>WEIGHT (approx.)</b>	8,000 lbs		11,000 lbs		16,000 lbs		20,000 lbs		

\*System may include matching transformer

## Options Available

- Physical Measurement Instrumentation
  - Vibration Measurement
  - Thermocouple Temperature Measurement
  - RTD Temperature Measurement
- Swivel Jib Boom for Output Leads
- Dynamometer Interface
- Operator Training

**+1.301.746.8118**



**PHENIX Technologies** is committed to providing leadership, innovation, technology, quality, and service in all areas of our business.

Our 85,000 square-foot headquarters is a modern manufacturing facility. All aspects of electrical, mechanical, and software design and production are performed in this facility. Our engineers offer a unique blend of theoretical knowledge and practical experience. Our Service and Calibration Department assists customers during and after installation to ensure years of trouble free service.

We carry our commitment into the future as we proudly continue to provide the best in **high voltage, high current, high power test systems and components.**



**PHENIX**  
**TECHNOLOGIES**

**WORLD HEADQUARTERS**

**Phenix Technologies, Inc.**  
75 Speicher Drive  
Accident, MD 21520 USA  
Ph: +1.301.746.8118  
Fx: +1.301.895.5570  
Info@phenixtech.com

**BRANCH OFFICES**

**Phenix Systems AG**  
Riehenstrasse 62A, 4058 Basel, Switzerland  
Ph: +41.61.383.2770, Info@phenixsystems.com

**Phenix Asia**  
Zhong Cheng Rd, Sec 1, No 177, 2F, Taipei 11148 Taiwan  
Ph: +886.2.2835.9738, Fx: +886.2.2835.9879, Info@phenixasia.com

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