

# HICKLIN EDECT

BY SUPERFLOW

HEAVY DUTY TRANSMISSION DYNAMOMETER



[WWW.SUPERFLOW.COM](http://WWW.SUPERFLOW.COM)

1.888.442.5546

AXILINE

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## A PIONEER IN HEAVY-DUTY TRANSMISSION TESTING

Hicklin Engineering®, a division of SuperFlow®, has been producing Inline, V-Drive, Angle Drive and Cross Drive Transmission Dynamometers in Des Moines, IA for more than 35 years. The latest Electric Drive Eddy Current Tester (EDECT) represents the culmination of all those years of operational and engineering refinements, experience that is unrivaled in the marketplace. Over 300 Hicklin® Transmission Dynamometers are installed worldwide with 74 of those dynamometers in use at military bases.

Hicklin® Transmission Dynamometers are the industry standard in heavy-duty transmission testing because we never lose sight of our commitment to improve the bottom line of our customers. This allows us to continually offer the latest, most efficient transmission testing products in the industry. It also doesn't hurt to back these products up with the most respected customer service department in the industry.

## WORLDWIDE RECOGNITION

The SuperFlow® brands of transmission test equipment (Axiline® & Hicklin®) are installed at over 1000 customer sites in 52 countries around the world. Our customers know that our track record of excellence and our broad knowledge of transmission testing is evidenced by our expertise and skill in delivering world class test equipment. We've designed machines for the US Military and leading automotive manufacturers to ensure that the transmissions they manufacture or rebuild meet their exacting standards.

Our experience over the last 50 years has granted us the opportunity to work closely with the most respected companies in the transmission business to develop a line of products that deliver unmatched results. From handheld diagnostic testers and shifters to full blown transmission dynamometers with advanced data acquisition systems, SuperFlow® has the products you need to get the job done. Come see why thousands of companies worldwide have already chosen SuperFlow® for all of their transmission testing needs.

## SUPERFLOW'S® MANY INDUSTRY FIRSTS

### WE WERE THE FIRST

To use electric drives on transmission dynos

### WE WERE THE FIRST

To install eddy current load units on transmission dynos

### WE WERE THE FIRST

With data acquisition and control

### WE WERE THE FIRST

to introduce a valve body tester and solenoid tester in one unit: The Axiline VBT 8000

## SUPERFLOW®: TRUSTED BY THE BEST

### U.S. Army Facilities

- Anniston Army Depot, AL
- Red River Army Depot, TX
- Camp Dodge, IA
- Fort Carson, CO
- Fort Hood, TX
- Fort Riley, KS
- Camp Funston, KS
- Camp Carrol, Korea

### U.S. Marine Corps Facilities

- MCLB-Barstow, CA
- MCLB-Albany, GA
- Camp Kinser,, Japan
- Camp Lejeune, NC
- Camp Johnson, NC
- Camp Pendleton, CA
- 29 Palms, CA





## HICKLIN® EDECT - THE INDUSTRY STANDARD

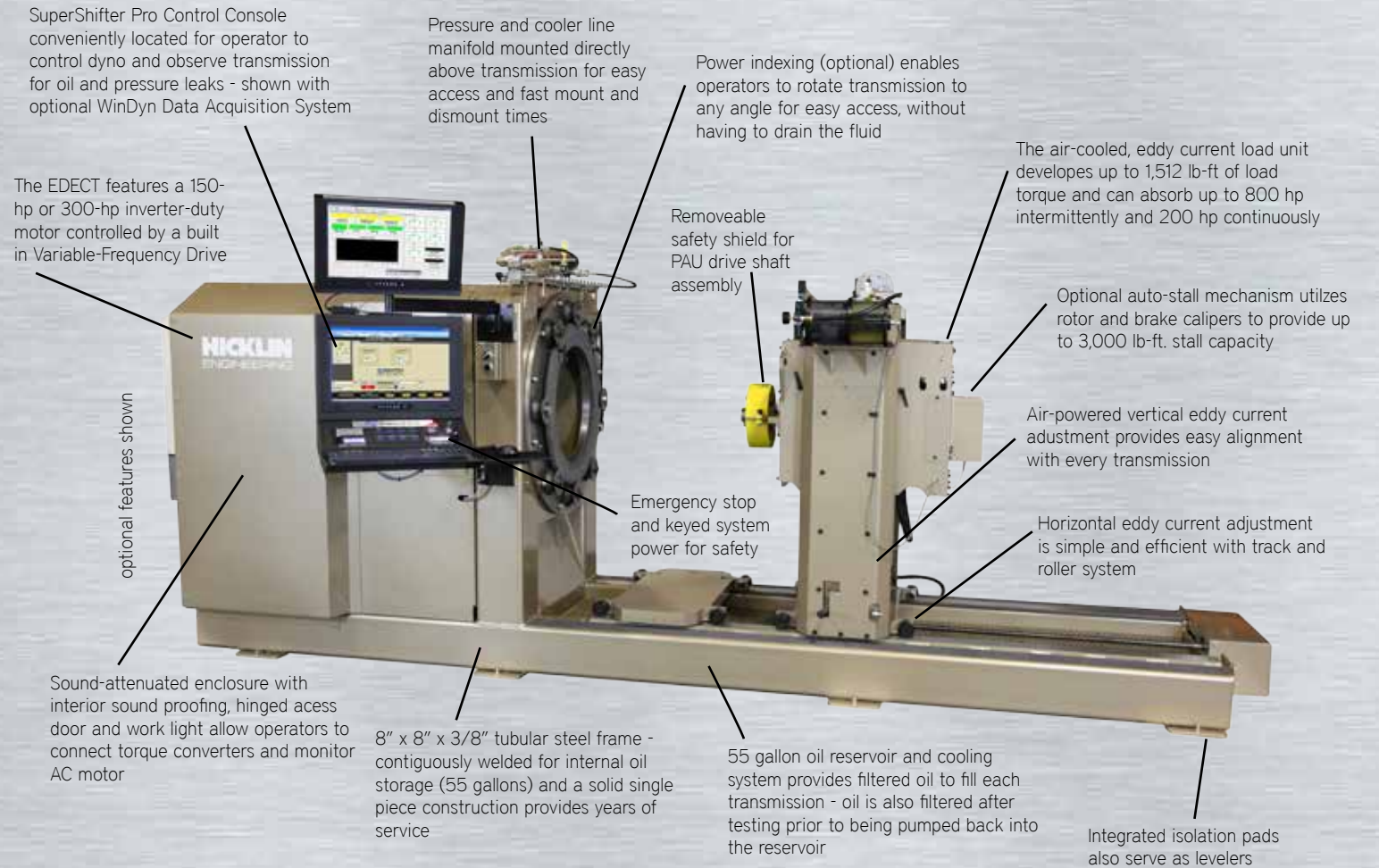
The Hicklin® EDECT 150 and EDECT 300 transmission dynamometers are designed for heavy-duty transmissions, including all inline, v-drive and angle drive configurations.

The EDECT will test the entire family of Allison® transmissions, Dana/Spicer®, Voith®, ZF®, and Renk® transmissions plus many military and off-road applications like CAT® and Clark®. The EDECT accommodates all sizes of off-highway transmissions, powershift and manual shift, including drop-box and remote mounted configurations. It comes standard with either a 150 hp (112 kW) or 300 hp (224 kW) direct drive AC Electric motor which is controlled by a precise, variable frequency drive controller. The EDECT was designed for extreme versatility so in addition to the standard EDECT 150 and EDECT 300, it can also be custom configured to accommodate other motor sizes ranging from 100 hp to 2,000 hp. The standard flow measurement group is rated for 3-60 GPM, but an additional flow group can be added in either 1-15 GPM or 4-85 GPM.

Dynamic load control is achieved using an air-cooled eddy current load unit which can absorb up to 1,500 lbs-ft (2034 N-m) of torque. The eddy current load unit makes the entire operation nearly maintenance free (no hydrostatic oil... no filters... no leaks). It is also extremely

reliable with just one moving part, the flywheel assembly. The eddy current load unit absorbs up to 800 hp (597 kW) intermittently and up to 200 hp (149 kW) continuously allowing you to perform true full throttle, load-induced downshifts. The load unit can actually push test transmissions into first gear and hold them there, even with the drive system set at full throttle. This creates a test integrity never before possible in service level equipment. Precise load control allows you to infinitely select everything from no-load to full-load with unmatched precision and the stability to perform pinpoint shift detection.

The EDECT's standard SuperShifter Pro® Control Console gives the operator full digital control of both the dyno and the transmission from a robust user console. The console is conveniently mounted on swinging arms so the operator can spot oil and pressure leaks, check hydraulic and system controls, and make minor adjustments while the transmission is mounted on the tester. The console then slides out of the way while transmissions are being changed on the machine. The EDECT can be upgraded with a WinDyn® Data Acquisition system for fully automated testing, user defined pass/fail reports and CAN transmission compatibility.



## PRECISE CONTROL

Hicklin's® advanced control strategies allow the dynamometer's electric motor to precisely simulate the characteristics of an internal combustion engine.





## USING THE EDECT YOU CAN TEST

- ☞ All gears - planetary, sun, etc.
- ☞ Mechanical noise
- ☞ Hot & cold testing
- ☞ All available pressure ports
- ☞ Shift points
- ☞ Pump capacity & flow pressure
- ☞ Leaks - internal, external
- ☞ Stall speed - forward, reverse
- ☞ Throttle valve pressure
- ☞ Automatic & manual upshift, downshift
- ☞ Vacuum pressure modulator
- ☞ Solenoid functions
- ☞ Converter - lockup and non-lockup types
- ☞ Output & internal loading

## THE BEST TRANSMISSIONS REQUIRE THE BEST DYNAMOMETERS



## SPECIFICATIONS

### 150 HP EDECT

### 300 HP EDECT

#### POWER REQUIREMENTS

460/380 VAC, 60/50 Hz

460/380 VAC, 60/50 Hz

#### AIR REQUIREMENTS

1/2" lines, 100 psi minimum  
(12.8 mm, 689 kPa minimum)

1/2" lines, 100 psi minimum  
(12.8 mm, 689 kPa minimum)

#### WEIGHT

6,000 lbs. (2,722 kg)

6,500 lbs. (2,948 kg)

#### DIMENSIONS

174 L x 52 W x 74 H inches  
(442 L x 132 W x 188 H cm)

181 L x 52 W x 74 H inches  
(460 L x 132 W x 188 H cm)

## INPUT DRIVES

#### TYPE

Direct-drive AC motor

Direct-drive AC motor

#### POWER

150 HP (112 kW)

300 HP (224 kW)

#### TORQUE

441 lb. ft. (598 Nm)

885 lb. ft. (1,200 Nm)

#### CONSTANT POWER RANGE

1,800 to 2,700 RPM

1,800 to 3,600 RPM

#### CONTANT TORQUE RANGE

435 to 1,800 RPM

360 to 1,800 RPM

#### MAXIMUM RPM

3,600 RPM

3,600 RPM

#### DUTY

Continuous

Continuous

**\*OTHER MOTOR SIZES AVAILABLE RANGING FROM 100 HP - 2,000 HP (75 - 1,491 kW)**

## OUTPUT LOAD UNIT

#### TYPE

Air Cooled Eddy Current, bi directional

#### INERTIA

169.1 lb-ft<sup>2</sup> (7.12 Kg<sup>m</sup><sup>2</sup>) - 175 lb-ft<sup>2</sup> (with stall brake rotor)

#### MAXIMUM SPEED

5,300 RPM (4,800 RPM continuous)

#### MAXIMUM DYNAMIC TORQUE

1,512 lb-ft (2,050 N-m)

#### PEAK POWER ABSORPTION

800 HP (597 kW) intermittent, 200 HP (149 kW) continuous



## SUPERSHIFTER PRO® CONTROL CONSOLE

The SuperShifter Pro® operator console is included on the Hicklin EDECT. It gives users a simple digital interface to control both the dyno and the transmission they are testing along with 8 programmable buttons for machine controls and 2 rotary knobs for easy input RPM and output load adjustment. Five screens within SuperShifter PRO provide the necessary tools to fully develop, test or diagnose transmissions. Popular features of SuperShifter PRO include: individual control of up to 12 solenoids, built in resistance tests and manual shift tests to diagnose under performing solenoids and other conditions that lead to harsh shifts. The easy-to-read digital displays for pressure switches, RPNDL, input RPM, left output, right output and gear ratio make it

easy to understand how the transmission is performing. Input RPM can be selected manually or closed loop PID controlled to RPM. Output load can also be selected manually as % of load or closed loop PID controlled to output torque. Electronic pressure control solenoids and lockup solenoids can also be tested and controlled via the on screen interface. The console is mounted on swinging arms so it can be moved out of the way while changing transmissions.



The operator console includes 8 programmable buttons for functions like trans fill/drain, motor power and motor direction. The built in computer runs SuperShifter PRO and the e-stop button and keyed power switch provide operator safety. The Manual Shift Screen shown above allows users to command transmission gear while manually controlling input speed and output load. The auto cycle feature shifts through the gears and holds each gear for selected time in seconds. Operators can control input speed and output load with sliders on screen or the knobs on the console during this test. The manual shift screen is typically used to warm up transmissions for automated tests and perform quick function tests of the newly rebuilt transmission.



Manual Solenoid Control Screen provides manual control of individual solenoids during shifting. The simple click-to-edit frequency ranges provide fast adjustment of solenoid response. Sliders can be pre-set and applied at once to manually simulate a gear shift or adjusted real time individually to highlight individual solenoids affect on flow.

## SUPERSHIFTER PRO® FEATURES

- ▣ Precise control of input speed and output load
- ▣ Individual control of up to 12 solenoids
- ▣ Tests most modern late-model transmissions
- ▣ Transmission lookup tool that searches by make and model
- ▣ Built-in solenoid current & resistance tests
- ▣ Real-time digital displays for:
  - PRNDL
  - RPM
  - pressure switches (when available)
  - TOT (when equipped)
  - gear ratio
  - clutch pressures
  - machine pressure
- ▣ Continuously monitors all critical parameters
- ▣ Modulated duty cycle and frequency range
- ▣ Edits shift files for customized testing
- ▣ Computer controlled
- ▣ Learn and save mode to expedite solenoid testing
- ▣ Auto Shift (time delay)
- ▣ PWM programming screen with delay
- ▣ Hot & cold solenoid pass/fail testing
- ▣ Eddy current load unit control
- ▣ Pump and machine on/off control
- ▣ Motor direction control
- ▣ PID setpoint control of input speed
- ▣ Continuing software updates
- ▣ Current measurement at 16-bit resolution

### OPTIONAL

- ▣ Transmission speed sensors



Solenoid Test Screen provides automated hot and cold solenoid pass fail testing of each solenoid's resistance. Two parameter sets can be stored in the same test file so the operator only has to select a cold test or hot test and the machine will generate pass/fail results based on the correct parameters. The results include solenoid name, its pass/fail result, and its resistance. Test parameters are click-to-edit so setup is quick. Parameters can be modified for single use or memorized for future use on the same type of solenoid.



Data Screen displays all pressures, temperatures, flows and speed sensors from the transmission. Individual control of solenoid duty cycle from this screen shows pressure change in one clutch at a time. Built in shift tests allow the user to manually command the gear while modifying duty cycles to study the effect on system pressure and flow.



## WINDYN® DATA ACQUISITION & CONTROL SYSTEM (optional)

WinDyn® is a complete Data Acquisition and Control System available for all SuperFlow® Transmission Dynamometers and Valve Body Testers. Upgrading the EDECT to WinDyn® provides users with unmatched capabilities for automated testing, live data monitoring and customizable post test reporting. Live onscreen digital displays can be customized on up to 10 screens for screen displays dedicated to different transmissions. Screen features include; digital meters, panel meters, live traces and bar graphs and they are fully customizable so your live test data is presented in a way that makes sense to you. All of WinDyn's digital displays include custom color ranges for visual alarms to represent high and low temperatures, pressures or other conditions the operator needs to be aware of right away. Post test analysis

is fully configurable also with customizable graphs of test data and automated test data print outs to pack and ship with each transmission so your customers know the unit was fully tested. Shift lag and shift time can be monitored and recorded to see how solenoid duty cycles and frequencies affect shift performance. The Pro Report feature checks test data against user defined high and low values and triggers a notification for the operator while the test is running. The operator can then choose to retry, abort or ignore based on the failure so if it isn't a harmful failure the test to that point isn't wasted. After the test Pro Report highlights any parameters that failed so operators can quickly diagnose problems or move on to the next unit.



Parameter	Value	Min	Max	Unit	Color
Pressure 1 (PSI)	100	100	100	PSI	Yellow
Temperature 1 (°F)	150	150	150	°F	Yellow
Pressure 2 (PSI)	100	100	100	PSI	Green
Temperature 2 (°F)	150	150	150	°F	Green

WinDyn's Pro Report feature lets operators quickly tell what parameter failed during the test, see its value and see the low and high value that was supposed to be met. Preset ranges determine the color indicator on the line that failed. This report can be saved, printed or sent to a network database. The report above shows failures against two parameters as indicated by the yellow highlights on the report.

## WINDYN® FEATURES & CAPABILITIES

- Custom, user-defined screens
- Custom, user-defined tests
- Real-time data viewing
- Test playback mode
- Full graphing capabilities (bar, X-Y & strip charts)
- Graph overlays for multiple test comparison
- 12 solenoid control channels
- 8 high speed 0-10V DC analog inputs
- 4 high speed 0-10V DC analog outputs
- 4 thermocouple inputs (type k)
- 4 thermistor inputs (for items like transmission oil temperature)
- 4 frequency inputs (configurable for mag pick-up or TTL)
- 16 digital inputs
- 16 digital outputs
- 2 load cell inputs
- 1 USB port for device
- 1 USB port for host
- Ethernet for WinDyn® 10/100 mHz
- Network ready
- 3 RS232 Serial com ports
- Current measurement at 16-bit resolution

### OPTIONAL

- 16 pressure inputs
- 16 0-10V DC inputs
- 1 load cell input
- 12 relay outputs
- 2 PWM outputs

On WinDyn equipped machines the operator console is equipped with a second monitor for WinDyn's live display and analysis features. Operators still have the convenience of push button controls and knobs to adjust input speed and output load, plus all the features of the standard console listed on pages 8-9. A typical automated WinDyn test is outlined below, however, WinDyn tests are fully configurable so you can modify or create new ones to test transmissions according to your individual preferences.

- PRNDL detent check
- Cold test - run through the full RPM range in each gear while cold
- Warm up sequence automatically varies input speed and output load to bring transmission to operating temperature
- Hot test - final run through the full RPM range in each gear while hot
- Measure shift lag (time in seconds for shift to start) and shift time (time in seconds from start of engagement to full engagement)
- Automatic Pro Report pass/fail data screen of recorded test data against preset min/max ranges



The test profile screen in the SuperShifter PRO console allows users to select and run automated transmission tests on machines equipped with the optional WinDyn Data Acquisition & Control System. Automated tests generate pass / fail test reports based on users parameters for the test unit. Tests that trigger fail conditions mid test will ask the operator to retry, abort or ignore the test so failures near the threshold don't require the entire test to be rerun.



## OPTIONAL EQUIPMENT

### HOT OIL CART

Hot oil carts pre-heat transmission fluid to cut down on warm up time and increase efficiency. 50 gallon capacity.



### SHIFT CONSOLES

Shift Consoles allow you to exercise and control several brands of transmissions while outside the vehicle. These control consoles have the capacity to hold up to four OEM Transmission Control Modules (TCMs) and they will operate transmissions on any test stand. Consoles are available for Allison, Voith and ZF transmissions. Please ask about our Shift Console brochure for more information.



### OUTPUT TORQUE

The pancake style load cell measures static or dynamic torque, up to 3,000 lb-ft.



### BASE EXTENSIONS

Optional base extensions for angle-drive and v-drive transmissions are available should your testing needs require. These extensions make the EDECT the most versatile heavy-duty transmission dynamometer on the market today.



More options available, call 1.888.442.5546 for more info.

## OPTIONAL EQUIPMENT

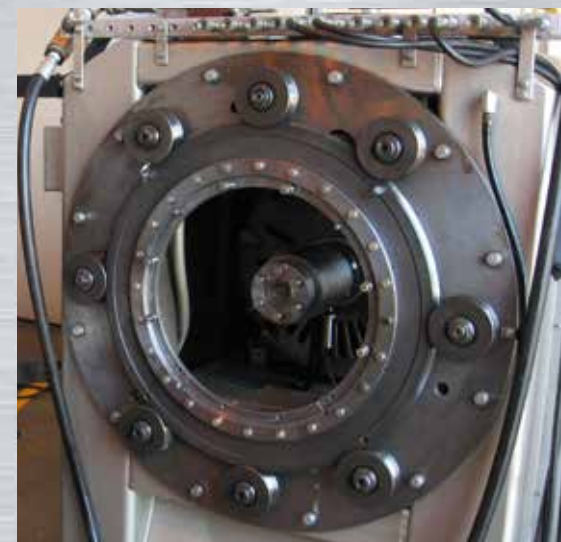
### AUTO CLAMPING

The auto clamping option increases test efficiency by eliminating the need to bolt transmissions to the master plate. Hydraulic clamps instead secure the transmission to the master plate for the duration of the test.



### POWER INDEXING

Power indexing enables operators to rotate transmissions to any angle for easy access, without having to drain the fluid



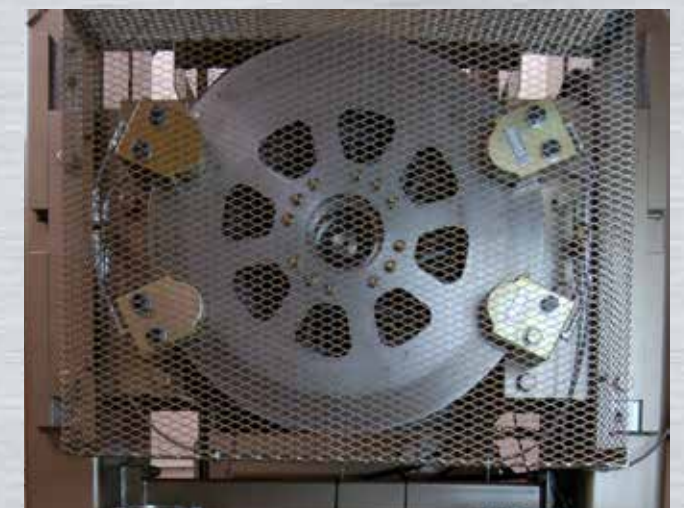
### POWER TRAVERSE

The power traverse option on the Hicklin EDECT provides push button movement of the eddy current load units.



### AUTO STALL

Auto stall replaces the manual stall bar by outfitting the eddy current absorbers on the EDECT with hydraulic disc brakes to test stall speed. An electronic actuator controlled by a button on the console or in WinDyn activates the auto stall brakes.



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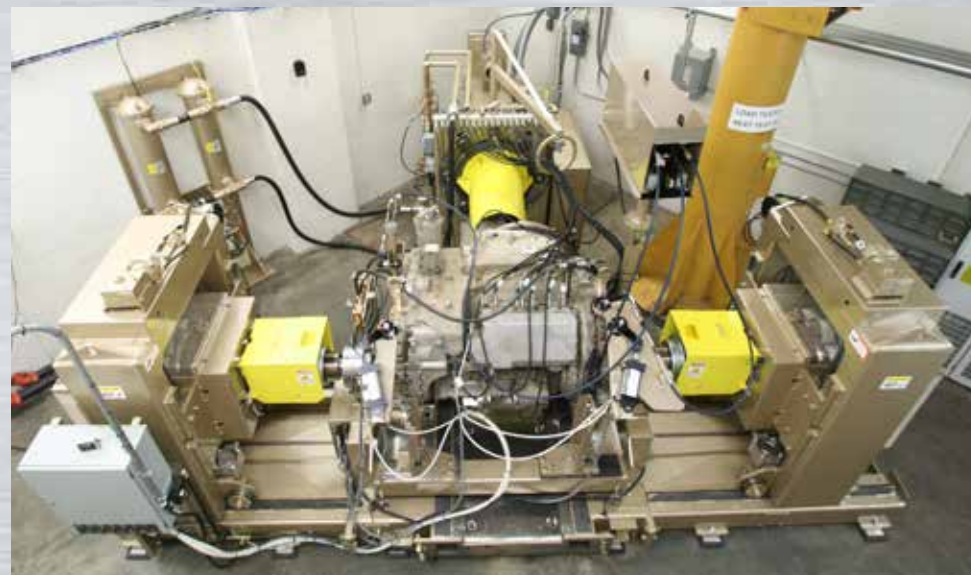
## EXTREME DUTY, CROSS DRIVE DYNOS & AC TEST STANDS

Hicklin® Engineering has built custom transmission testers for companies all over the world for over 30 years. We incorporate various input drive and output load technologies depending upon the applications needs. Designs for load absorption include eddy-current (air or water cooled), hydrostatic, hydro viscous and AC for a completely AC load and motoring dynamometer. Input drive options include AC motor, diesel or electrically driven hydrostatic input drives.



Hicklin Custom - EDECT 1850 Cross Drive

- 1,850 HP direct electric drive input motor
- Water cooled eddy current power absorbers
- Extreme duty transmission testing
- Custom designed automated test sequences



Hicklin Custom - EDECT 860 Cross Drive

- 860 HP direct electric drive input motor
- Air cooled eddy current power absorbers
- Extreme duty transmission testing
- Custom designed automated test sequences

Let Hicklin build your custom dyno, call 888.442.5546 for more information.

## LET HICKLIN DESIGN YOUR CUSTOM TEST STAND

If you need a custom transmission dynamometer or custom designed test stand please contact us to learn about what our engineering team can design and manufacture for you. Our ability to take complicated customer requirements and turn them into a one of a kind transmission dynamometer or other custom test stand is unmatched in the industry. At SuperFlow we know testing.



Hicklin Custom - EDECT 800 Cross Drive

- 1800 HP direct electric drive input motor
- Hydroviscous power absorbers
- Dual inertia flywheels
- Extreme duty transmission testing
- Custom designed automated test sequences

Let Hicklin build your custom dyno, call 888.442.5546 for more information.



# SUPERFLOW® DYNAMOMETERS & FLOWBENCHES

## HICKLIN® EDECT HEAVY DUTY TRANSMISSION DYNAMOMETER

SuperFlow® is a global market leader specializing in high-performance automotive testing and rebuilding equipment. Since the early 1970's SuperFlow® products have been used daily by professional engine builders, the military, technical schools, professional race teams, speed shops, transmission rebuilders, universities, and leading automotive manufacturers to produce powerful

and efficient vehicles. Our commitment to providing the best products and service at a great value has given us the opportunity to work with some of the most notable companies in the automotive industry. Come see why thousands of businesses have already chosen SuperFlow® for all of their testing needs.

CALL 1.888.442.5546 for more information on the Hicklin® EDECT Heavy-Duty Transmission Dynamometer.

Or visit us at [superflow.com](http://superflow.com)



## THE ONLY SOURCE FOR ALL YOUR TESTING NEEDS

- Chassis Dynos
- Flowbenches
- Torque Converter Rebuilding Systems
- Engine Dynos
- Solenoid Testers
- Transmission Testers
- Transmission Dynos
- Valve Body Testers

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For Europe sales & service please call +32-3-4846511 or email [info@superflow.be](mailto:info@superflow.be)  
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Equipment configuration is subject to change at anytime without notice and may not match what is shown in this brochure.

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