

### SF-3000BW Performance Engine Dynamometer

The SF-3000BW, also known as the Black Widow engine dyno from SuperFlow, is unmatched in its combination of low speed torque capacity and high-speed power capacity. This means the SF-3000BW is equally matched for diesel performance and Pro Mod drag applications. The stainless-steel absorber will last for years due to its high resistance to cavitation. Automated tests make operation simple and repeatable with prompts that guide you from start to finish.

With a speed range from 1,300 rpm all the way to 11,000 rpm (intermittent), the SF-3000BW (Black Widow) handles anything from high-torque performance and marine engines to high-revving drag engines. This versatile water brake dynamometer is rated for 3,000 hp (2,237 kW) and 2,500 lb-ft (3390 Nm) of torque. Our engineers have meticulously implemented measures to ensure the SF-3000BW possesses the renowned accuracy, consistency, and control characteristic of all SuperFlow dynamometers.

Actual products may differ from images shown

# SF-3000BW

## Features and Standard Configuration



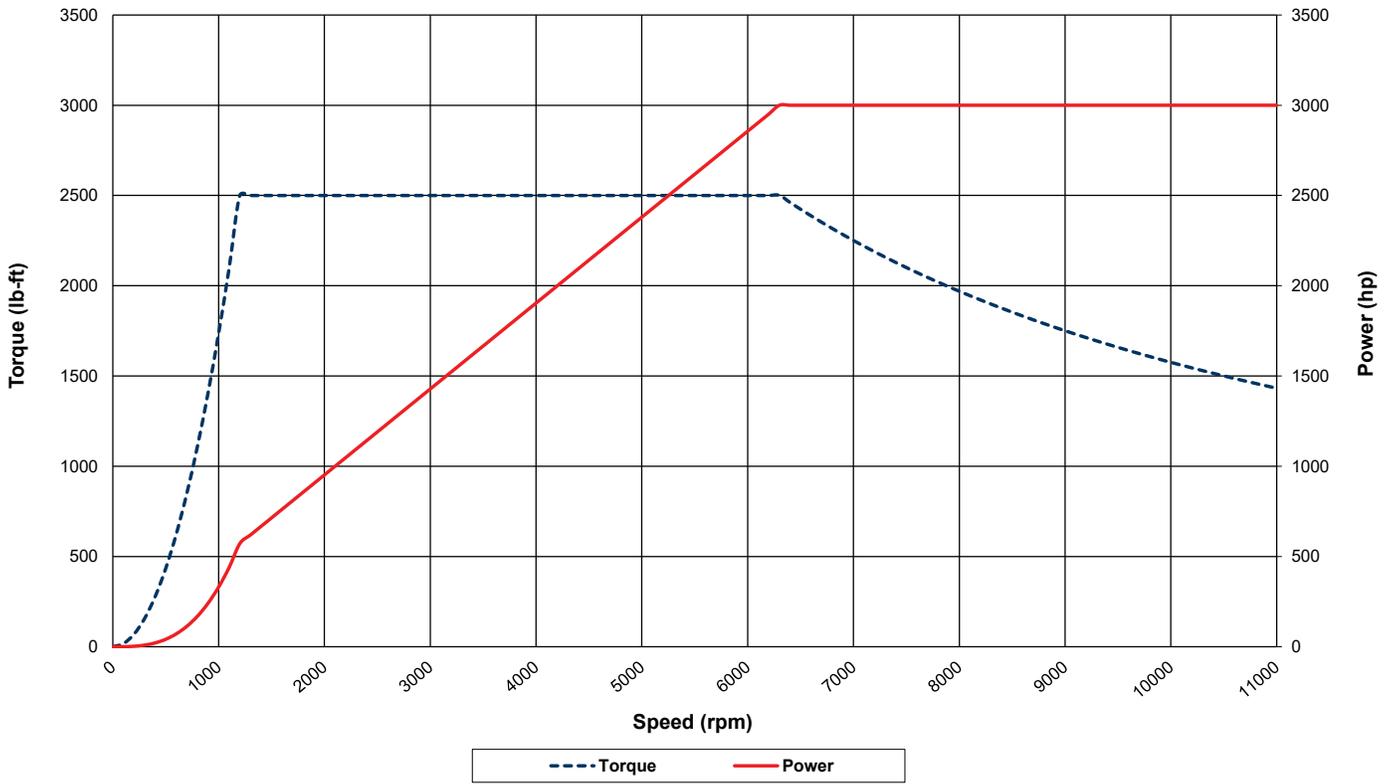
The SF-3000BW (Black Widow) is built with integrated starters which eliminate the need for bell housing or engine mounted starter. A special compliant driveshaft that absorbs the torsional vibrations of the engine allows for coupling to the dynamometer directly to the engine's crankshaft or flywheel. The driveshaft's 4.5 in (114 mm) constant velocity (CV) joints ensure smooth power transfer.

Precise control of the water equates to precise closed-loop load and speed control of the engine. SuperFlow designed an exclusive dual water valve strategy for the SF-3000BW. Stainless steel absorber inlet and outlet valves with high speed stepper motors control the water flow in and out the Black Widow's absorber manifolds. The dual valve control allows the water brake to respond quickly to abrupt load changes such as nitrous oxide "hit" or steep rise in engine volumetric efficiency (VE) from a turbo or supercharger and it increases overall system torque absorbing capacity.

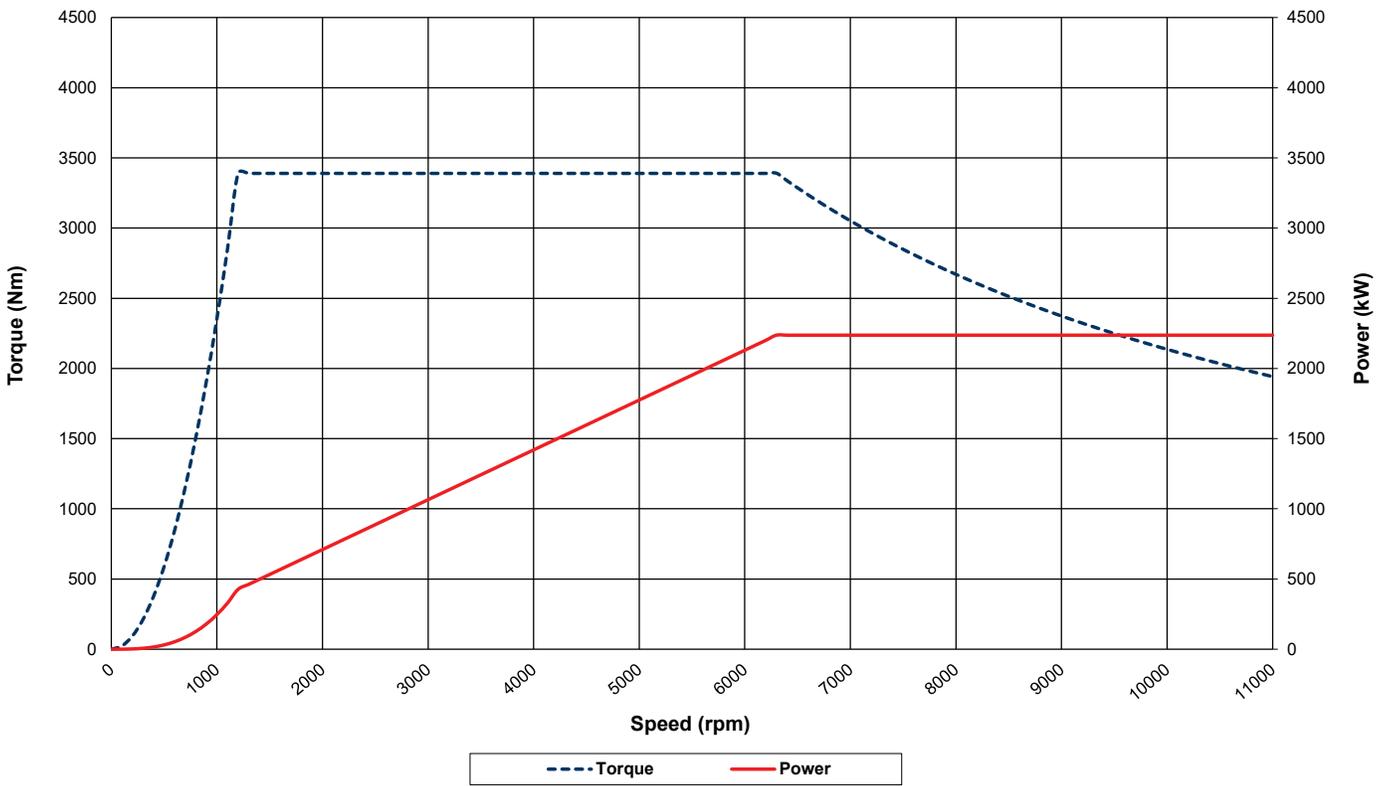
### Features:

- Complete engine testing system includes dynamometer stand, engine docking cart, operator station & console, throttle control, thermostatically controlled engine cooling column, WinDyn data acquisition and software, Dynamometer PC, multiple monitors and color printer
- Durable industrial grade construction and components for reliable trouble-free operation
- Test stand located large tool tray also convenient area to mount ECM/ignition systems
- Automated tests for simple operation and extreme repeatability
- Uni-directional operation - with unique cross vented rotor design for equal capacity in either direction
- Boom system to mount sensor box, manage sensor cables, weather station and mount the cooling column neatly in the test cell
- 500 data acquisition channels – user configurable to meet any application
- Pre-scripted standard tests like acceleration sweeps, step and steady state tests, and engine break-in test cycles
- Modular sensor box with expansion panel system to easily add sensors as testing needs change over the life of the dyno

### SF-3000BW (US Customary)



### SF-3000BW(S.I.)



# Specifications

## Power and Torque

- Absorber Type: Water brake, uni-directional
- Maximum Speed: 11,000 rpm \*intermittent
- Horsepower Capacity: 3,000+ hp (2,237+ kW)
- Torque Capacity: 2,500+ lb-ft (3,390+ Nm)

## Water Requirements

- 10 gallons per minute (gpm) for each 100 hp (75.5 kW) produced by the engine at a minimum pressure of 35\* psi (2.4 bar)  
\*application specific

## Typical Shipping Dimensions and Weights:

- 64 x 87 x 62 in (163 x 221 x 157 cm)
- 2,280 lb (1,034 kg)

## Stand Sensor Compliment Includes:

- **Temperature:**
  - (1) One: (16) Sixteen-channel thermocouple panel
  - (12) Twelve: Closed tip thermocouples, .125 in (.3175 cm) diameter x 4 in (101 mm) long probe with 5 ft. (152 cm) lead, 0° to 2,000°F (-17.8° - 1,093°C)
  - (12) Twelve: Swagelock fittings
  - (12) Twelve: 10 ft (3.048 m) extension cables
- **Pressure:**
  - (1) One: (10) Ten-Channel pressure panel
  - (3) Three: Transducers included standard (-15 to 150 psi, 1-10 bar)
- **Air / Fuel:**
  - (2) Two: Pre-configured analog inputs (Lambda/ AFR)
- **Fuel Flow:**
  - (2) Two: Fuel flow measurement turbines 2-80 gallons (7.5- 302 l) per hour (Gasoline) each

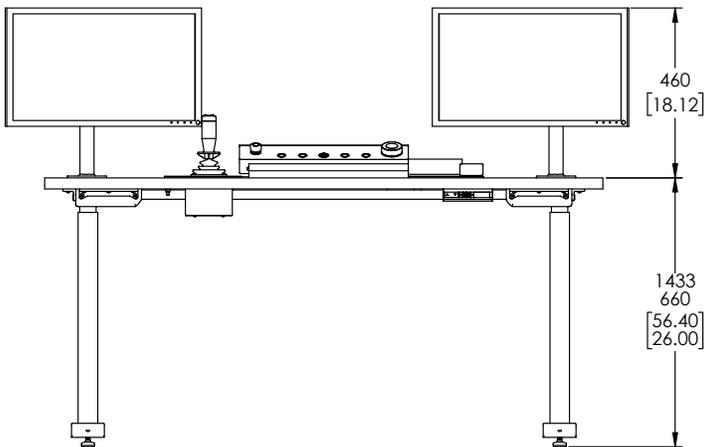
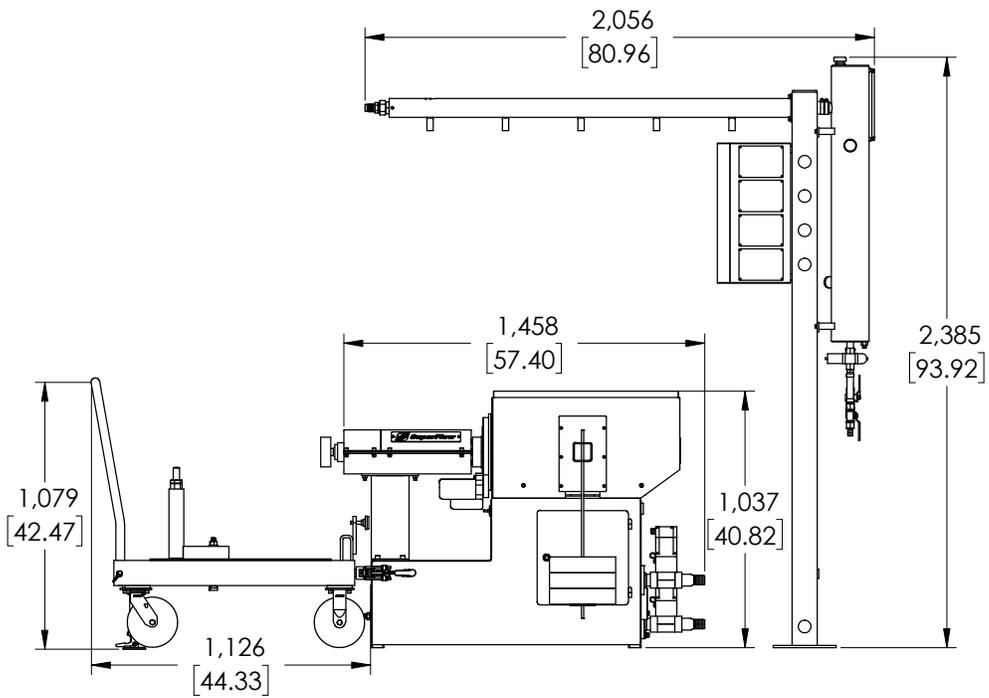
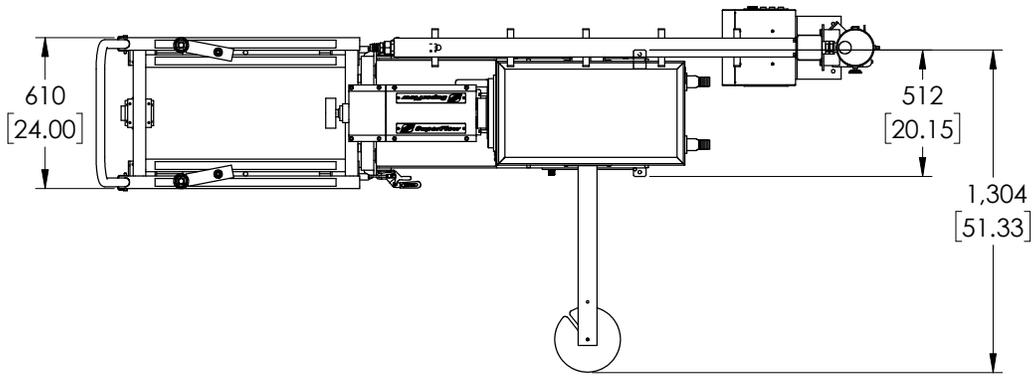
## WinDyn® 5 Data Acquisition System

SuperFlow's advanced WinDyn 5 Data Acquisition System provides a wealth of pre-defined tests along with a user-friendly test editor to easily write custom tests. Standard tests can be performed and at part or wide open throttle. These include: controlled acceleration, controlled deceleration, step, steady-state, and track lap, break-in and mapping.

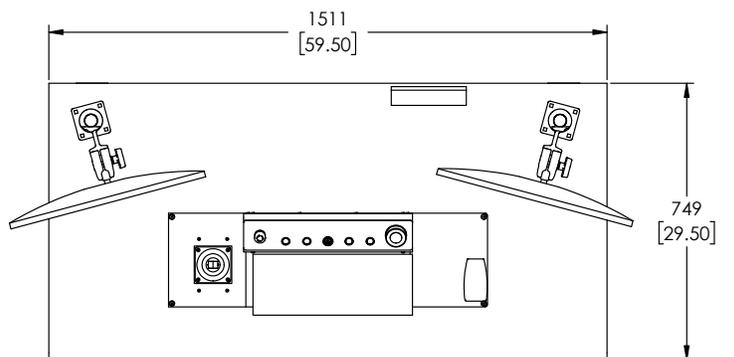


# SF-3000BW - Tower - Engine Cart

mm  
[in]



## Control Console Table

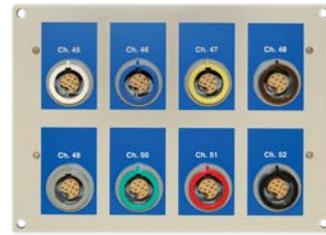


# Typical Product Options



### Air Flow Measurement Turbine

Volumetric air flow measurement device in 4,6,9 in (10, 15, 23 cm) models available. Ceiling mount kit available (shown above).



### Analog Panel

8 channel analog panel to integrate exhaust analyzers, lambda sensors and other devices with analog outputs. Select 0-1V, 0-5V, 0-10V, 0-20V or 0-30V



### Blow-By-Sensor

Measures the volumetric flow of crankcase blow-by. Two sizes available: 0.4 to 16 ACFM and .25 to 10 ACFM. Select either analog or frequency output.



Optional Short Engine Mounts

### Additional Docking Cart

Extra docking cart to save time between engine tests by pre-staging engines. Includes removable handle and two adjustable front engine supports. Engine mounts sold separately. Standard size is shown. Long version and HD Industrial engine size carts also available.



### Additional CV Joints

Allows splined slip CV joint to stay with extra cart and/or flywheel and crank adaptors for faster unit under test changes.



### AFR/LAMDA Sensor Kit

AFR/LAMDA sensor kits available. Kits available in 2-16 channels. Bosch LSU 4.2, 4.9 and OEM grade NTK type sensors available.



### Flywheel and Crankshaft Adaptors

Adapts engine flywheel or crankshaft to dynamometer driveshaft CV joint. Universal flywheel adaptor with patterns to fit most domestic flywheel patterns. GM "Prostock" inertia crank adaptor and direct to crank buttons available in early Chevy, small ford and blank versions.



### Engine Oil Cooler

Designed for oil cooling during endurance tests. Multi-pass water to oil heat exchanger with adjustable temperature control. Plumbing water and oil hoses not included.



### Sensor Expansion Panels

The modular sensor box allows for additional sensor expansion panels. Pressure, analog and temperature panels are available. Extra pressure transducers are sold separately.



### Fuel Canister

Designed to measure fuel consumption of fuel injected engines. Mid-flow unit available in 20 - 720 lb/hr (9 - 327 kg/hr). High-flow unit available in 30 -1070 lb/hr (14 - 485 kg/hr). Available for gas and alcohol.



### Throttle Actuator

Electric throttle control provides automated testing from dynamometer control system. Upgrade from standard cable operated throttle. Linear actuator with push button span adjustment. High-speed rotary actuator also available.



### 2,000 hp (1,491 kW) Gasoline Fuel System

High Performance fuel pump - 1,200 lb/hr (545 kg/hr) /filter combo with two high flow fuel pressure regulators, accumulator tank, pressure bypass and vibration isolated mounting bracket.



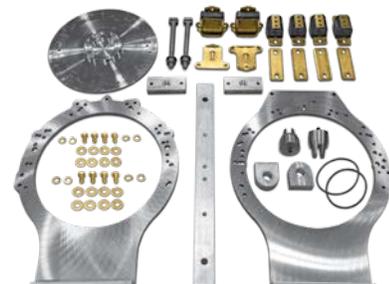
### Throttle Box Joystick Control

Provides joystick control of throttle actuator switchable from manual and automated control.



### Pressurized Cooling Columns

CT-700 Pressurized Cooling Column integrates seamlessly with boom assembly. Standard temperature range from 160° F - 230° F (71° C - 110° C). Rated for continuous duty testing up to 700 HP (522 kW). CT-300 hp (223.7 kW) version available for small engine testing.



### Complete US Domestic V8 Engine Mount Kit

Includes multi-fit rear engine mounts, polyurethane engine and vibration mounts, and a universal flywheel adaptor. Kit components available individually and some may be used universally with other engines.



SuperFlow® is part of Power Test, LLC, an industry leader in the design, manufacture and sales of dynamometers, specialized test systems, and related data acquisition and control systems. Power Test, LLC, offers a portfolio of brands that have long been the standard bearer for quality in the testing industry. As your equipment testing partner for innovative products and comprehensive life-cycle services and support, we are dedicated to delivering an exceptional experience by offering specialized solutions to Make Your Testing Easy.

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Valve Body Testers

Transmission Testers