

High Current Production Line Battery Testing

Model HRD
(series 2000 & 3000)



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For Automotive and Commercial Batteries



Discharge Capacity 2000 or 3000 Amperes



Solid State SCR Controlled Load Switching



Water Cooled Cables, Resistor and Load



Switching

Bitrode

High Current Production Line Discharge Testing

Models available
with 2000 or 3000
ampere maximum
discharge

Water Cooled

SCR Load
Switching

The HRD family of equipment is designed for high rate discharge testing of automotive and commercial 6 and 12 volt batteries. Using Bitrode's exclusive pneumatically assisted manual test cables, the operator can perform a short test on each battery to find defects such as poor welds, reversed plates, and poorly formed batteries. Models available with maximum discharge current of 2000 or 3000 amperes. Unit is water cooled with a fixed resistor and SCR load switching.

Theory of Operation

Test can be single discharge or two step discharge separated by a rest. Single test duration can be 0.1 to 9.9 seconds adjustable in increments of 0.1 second.

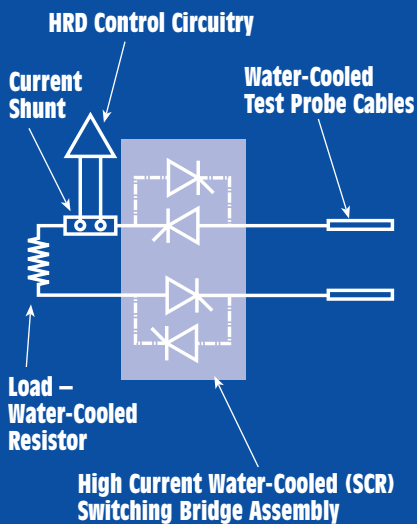
Preset two-step test is a 2.0 second test, a 3.0 second rest followed by a 2.0 second test. The test steps are adjustable from 2.0 to 9.9 seconds and the rest is adjustable from 2.0 to 4.0 seconds.

Option is available for open circuit voltage test and reject or voltage during test and reject. This option is available for 12 volt batteries only.

Test current can utilize one resistance range or, as an option, a user-selected two or three range setting can be supplied for maximum discharge current over a wide range of battery sizes.

The operator sets the minimum reject current using a digital adjustment control on the front of the unit. When the battery under test fails to meet the minimum reject current, the reject horn sounds and a reject light is illuminated. On a two-step test, the reject signal for low current operates on the second discharge test only.

Meter to hold final discharge current. Front panel indicator warning lights for over temperature, low water pressure and over current.



Model HRD 3000

Front panel with optional open circuit voltage test and auto-manual select switch for an optional automated test fixture

Operator Controls

Panel mounted polarity reverse control to allow bipolar battery testing without battery manipulation.

Equipped with voltage sensing leads and digital display of battery voltage during test.

On models equipped with optional 2 or 3 range resistance, operator chooses range from panel mounted switch.

Analog ammeter supplied in ranges of zero to 2000 or 3000 amperes to visually monitor discharge current during test. Optional digital meter to hold final discharge current.

Front panel indicator warning lights for over temperature, low water pressure and over current.

Key Features

Models available with a maximum discharge current of 2000 or 3000 amperes.

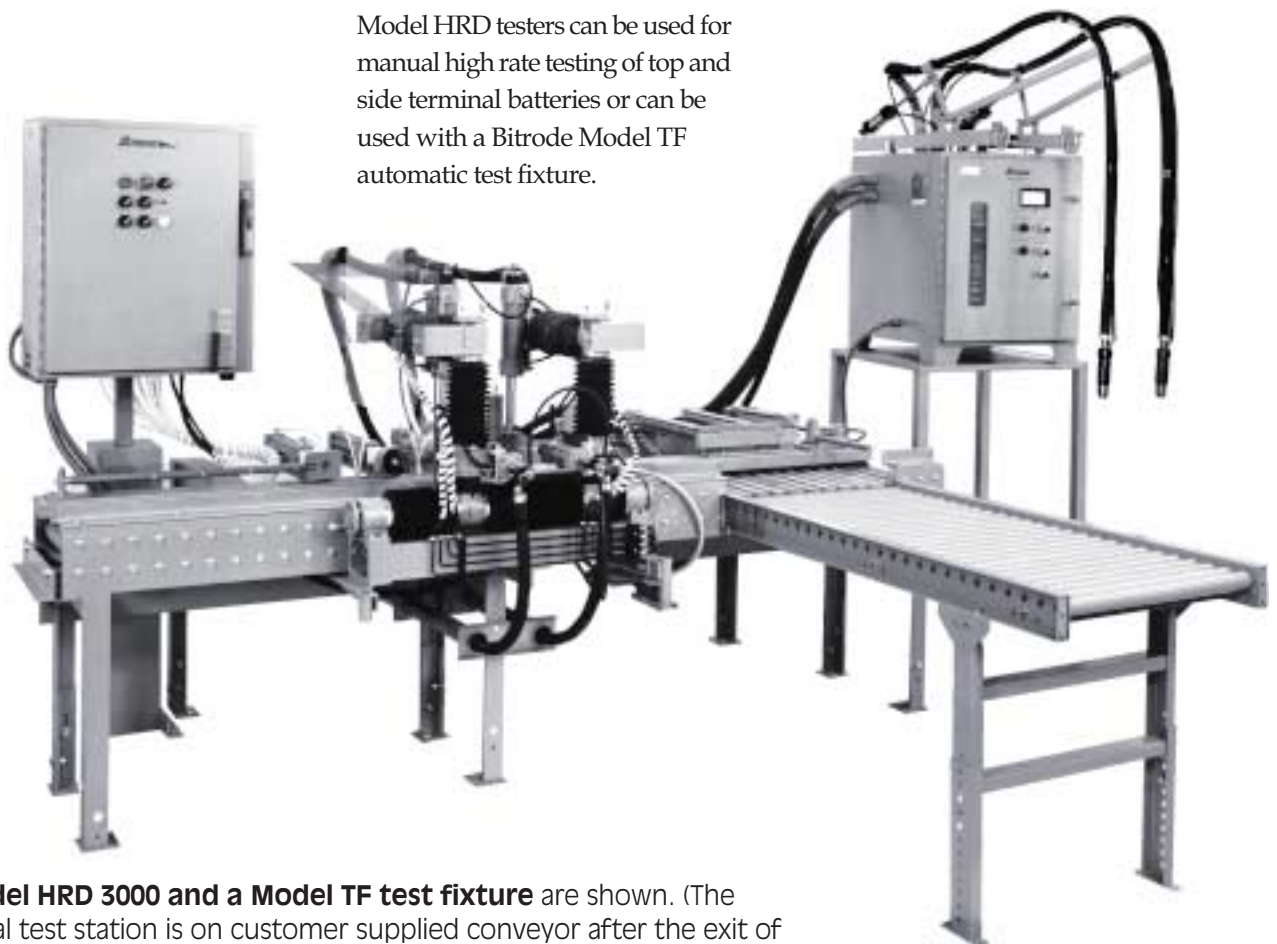
Water Cooling for Continuous Service

The heat producing elements are water cooled for continuous service and long life. Water cooling is utilized in the test probes, discharge cables, load resistor and the solid state load switching mechanism. When the HRD tester is used with an automatic battery test fixture such as the Bitrode Model TF, the cooling water is also circulated through the test cables and pneumatic test heads. Over temperature shutdown control and low water pressure front panel indicators are standard on HRD models. An option is available for a closed loop cooling system.

Model HRD testers can be used for manual high rate testing of top and side terminal batteries or can be used with a Bitrode Model TF automatic test fixture.

Pneumatically Assisted Test Probes

A Bitrode Exclusive: Manual test cables are raised and lowered by air pressure. The operator needs only guide the cables up or down with gentle pressure to raise or lower the cables; this greatly reduces operator fatigue. Unit features a high speed air release valve. When the test initiation switch on the hand probe is activated, the high speed air valve releases the counter weight. This allows the weight of the cables to press on the battery, making good probe contact. When the test is complete, the high speed valve activates to lift the test probes 2-3 inches (5-8 cm) above the battery. The drop of the cables may be adjusted to control the level of the probes during test.



A Model HRD 3000 and a Model TF test fixture are shown. (The manual test station is on customer supplied conveyor after the exit of the test fixture.)

Solid State Load Switching

A Bitrode exclusive: Solid state load switching using water cooled 'hockey puck' type SCRs provides the most reliable and reproducible high rate switching available. Can switched for millions of cycles with test current reproduction precision that cannot be matched by mechanical devices and with no service required on the solid state switching mechanism.

Options

- Open circuit voltage test and reject (12 volt only)
- Load voltage test and reject (12 volt only)
- Two or three range discharge current
- Digital meter to hold last discharge current
- Closed Loop cooling system
- Attachment to a Bitrode Model TF Automated Test Fixture



Model HRD 3000

Input Power						
Model	Volts	Hertz	Phase	Amperes	Water*	Air**
HRD 2000	115	60	1	3	6 GPM	0.5 CFM†
	230	50	1	2	6 GPM	0.5 CFM†
HRD 3000	115	60	1	3	6 GPM	0.5 CFM†
	230	50	1	2	6 GPM	0.5 CFM†

	Dimensions			Weight	
	W	D	H	Net	Export Packed
	In/Cm	In/Cm	In/Cm	Pounds/Kilos	Pounds/Kilos
HRD 2000	26/66	30/76‡	100/254‡‡	660/300	950/431
HRD 3000	26/66	30/76†	100/254‡‡	660/300	950/431

* 40 PSI Min (2.76 bar)

** 50 PSI Min (3.45 bar)

† With manual test cables

‡ Basic Cabinet

‡‡ Includes 41 inch (104 cm) stand and 16 (41 cm) inch head clearance for cable assembly

All products are subject to change in physical appearance and circuitry which will not alter performance specifications.



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