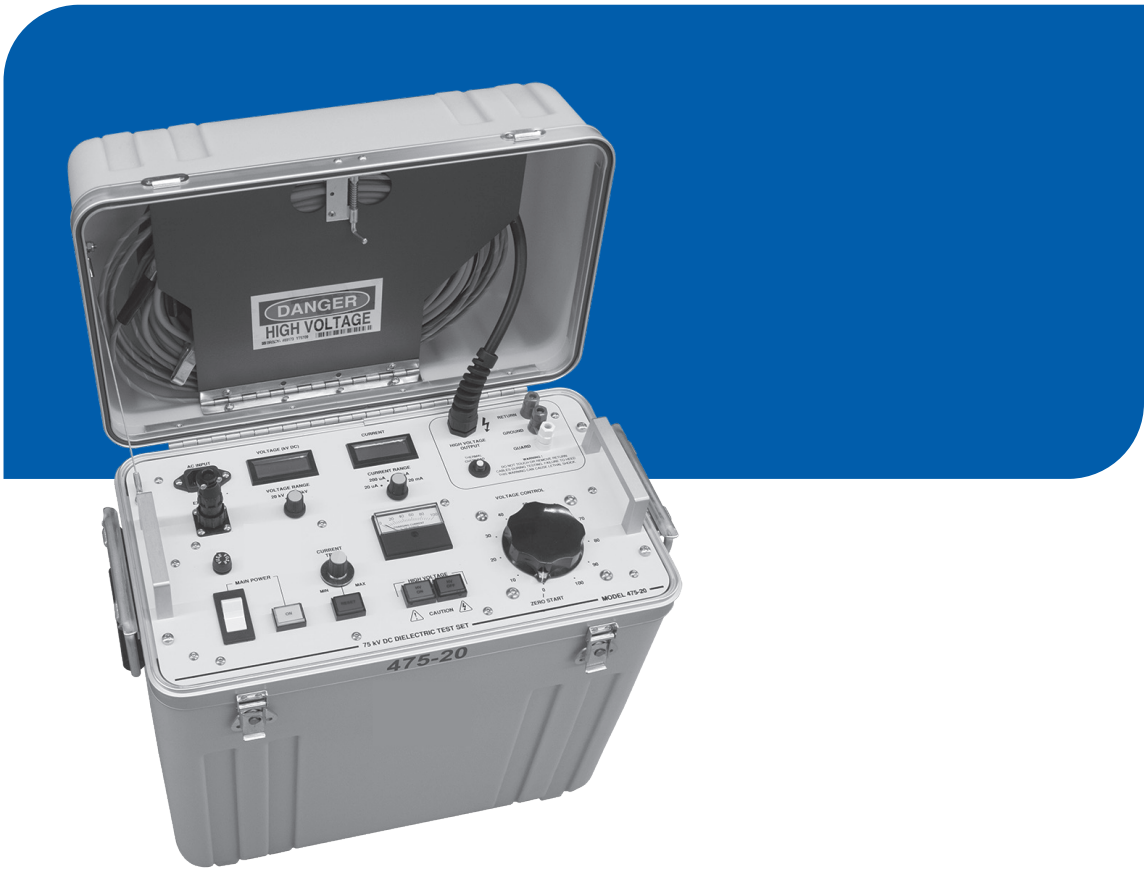
ELECTRICAL TEST INSTRUMENTS

Portable DC Hipots

40-200 KV



ELECTRICAL TEST INSTRUMENTS

PORTABLE DC HIPOTS

40-200 kV

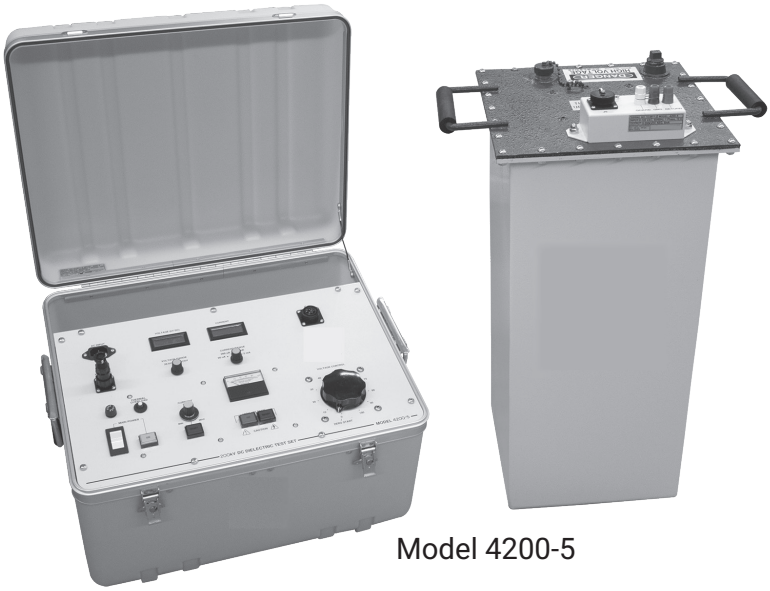
Testing Applications

Perform accurate DC hipot testing of electrical switchgear, cables, motors, generators, and protective equipment.

- Lightweight and ruggedly constructed for years of field use
- Models available with easy to read digital meters or a full-color touch screen display with data acquisition
- Internal discharge device
- Shielded high voltage output cable
- ISO17025 calibration upon request

Model 475-20

Model 440-20B



Model 4200-5

www.doble.com

Portable DC Hipots 40-200 kV

Doble Engineering offers a line of portable 40-200 kV DC Hipots with many advanced features.

The high voltage is generated by a filtered high voltage doubler circuit, that is purpose built by Doble for the exacting demand of high voltage testing.

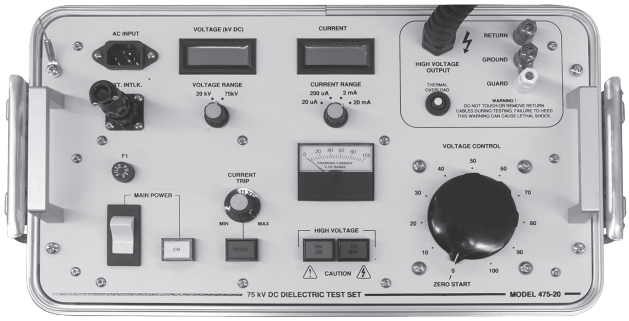
A solenoid operated discharge switch quickly discharges the load after testing. All high voltage components are housed in an oil filled aluminum sealed grounded dead tank. A shielded high voltage lead allows the operator to safely connect the high voltage output to the test object. The high mA charging current, which is standard with all Doble DC Hipots allows the operator to quickly and efficiently charge large capacitive loads.

In the standard series the precision metering measured off of the high voltage output indicates the output voltage and leakage current on large easy to read digital meters. An analog meter is provided for reading charging current.

The "B" series has a 7" Full-Color Touch-Screen display with auto-ranging current meters plus many additional features. The "B" series include a separate always active internal guard mode and will calculate insulation resistance continuously.

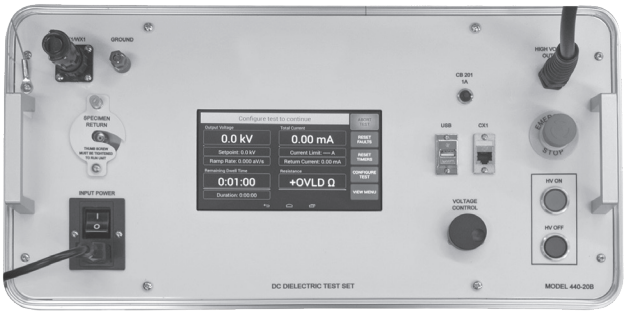
Additional safety features include an instantaneous and thermal overload protection for the operator and test object.

The proven and rugged design coupled with precision metering and ease of use have made Doble DC hipots the optimal choice.



Standard Series - Design & Safety Features

- Main power circuit breaker switch (with indicator)
- External warning circuit provision for safety devices such as flashing light
- High Voltage ON/OFF pushbuttons with indicators
- Manual control of output voltage
- Zero Start interlock
- External interlock provision
- Overload circuit adjustable from 10% to 110% of rated current
- Output overload indicator with reset button
- Slow and fast acting transient protection on all meters and relays
- Built-in discharge circuit
- Very low ripple, < 2% RMS at full output
- 3 1/2 digit, multi-range metering
- Analog charging currentmeter
- Guard mode for accurate current measures
- Thermal resettable overload protecting high voltage transformer primary circuits



"B" Models - Design & Safety Features

- Main power circuit breaker switch
- External warning circuit provision for safety devices such as flashing light
- High Voltage ON/OFF pushbuttons with indicators
- Emergency Off pushbutton (Locking)
- Automatic voltage control or manual voltage control via infinity dial
- USB port for data acquisition via USB drive
- WiFi control from PC (Requires optional software)
- Auto-ranging meters for total current and specimen return current
- Return lead safety locking retention clip
- Shielded test current measurement lead
- Built-in discharge circuit
- Very low ripple, < 2% RMS at full output
- 7" Full-color touch-screen display

HMI Displays Metering, Various Controls, and System Messages

- Breakdown memory voltmeter
- Maximum voltage reached memory voltmeter
- Duration and Dwell timers
- Zero Start interlock
- Adjustable rate of rise in Volts/Seconds
- Adjustable overcurrent trip point
- Output overload indication with reset
- Insulation Resistance calculation

	MODEL	440-20 & 440-20B	475-20 & 475-20B	4100-10 & 4100-10B	4120-10 & 4120-10B	4160-5 & 4160-5B	4200-5 & 4200-5B
INPUT	Voltage / Current	110-120 V, 5 A 220-240 V, 3A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A
	Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
DC OUTPUT	Voltage / Current	0-40 kV, 20 mA	0-75 kV, 20 mA	0-100 kV, 10 mA	0-120 kV, 10 mA	0-160 kV, 5 mA	0-200 kV, 5 mA
	Ripple	<2%					
	Polarity	negative output, positive ground					
DUTY CYCLE	Continuous Capacitive Charging	20 mA	20 mA	10 mA	10 mA	5 mA	5 mA
INTERNAL DISCHARGE DEVICE		3 kJ	6 kJ	6 kJ	12 kJ	12 kJ	12 kJ

	Model	440-20	475-20	4100-10	4120-10	4160-5	4200-5
METERING	Type	Digital, LCD, 3 1/2 digit, Accuracy 0.5% of Full Scale					
	Voltmeter	0-19.99/0-40 kV	0-19.99/0-75 kV	0-19.99/0-100 kV	0-19.99/0-120 kV	0-19.99/0-160 kV	0-19.99/0-200 kV
	Currentmeter	0-19.99 µA/ 199.9 µA/ 1.999 mA/ 19.99 mA					
	Output Charging Indicator	1.5" Analog 0-100% of selected range indication					
	Model	**440-20B**	**475-20B**	**4100-10B**	**4120-10B**	**4160-5B**	**4200-5B**
	Type	HMI Displayed, Accuracy +/- (0.8% of Reading +0.2% of Range)					
	Voltmeter, Peak √2	0-40 kV	0-75 kV	0-100 kV	0-120 kV	0-160 kV	0-200 kV
	Total Currentmeter, True RMS	0-2 mA, 20 mA					
	Specimen Currentmeter,Peak√2	0-20 µA, 200 µA, 2 mA, 20 mA					

	Model	440-20	475-20	4100-10	4120-10	4160-5	4200-5
DIMENSIONS & WEIGHTS (approx.)	Controls	18.5 L x 10.5 W x 21.5" H (470 x 267 x 546 mm) 50 lbs (23 kgs)	59 lbs (27 kgs)	22.5 L x 21 W x 16.5"H (572 x 533 x 420) 98 lbs (44 kgs)	21 L x 17 W x 14" H (533 x 432 x 355 mm) 25 lbs (11 kgs)	33 lbs (15 kgs)	35 lbs (16 kgs)
	HV Tank	one-piece design			17.5 L x 12 W x 22" H (440 x 205 x 560 mm) 111 lbs (50 kgs)	18 L x 12.75 W x 28" H (460 x 325 x 710 mm) 150 lbs (68 kgs)	23 L x 20 W x 36" H (584 x 508 x 614 mm) 375 lbs (170 kgs)
	Shipping Size	22 L x 14 W x 24" H (558 x 356 x 610 mm) 56 lbs (25 kgs)	69 lbs (31 kgs)	27 L x 26 W x 21" H (686 x 660 x 533 mm) 115 lbs (52 kgs)	48 L x 30 W x 41" H (1219 x 762 x 787 mm) 195 lbs (88 kgs)	42 L x 27 W x 37" H (1067 x 686 x 940 mm) 285 lbs (129 kgs)	Consult Factory
	Model	**440-20B**	**475-20B**	**4100-10B**	**4120-10B**	**4160-5B**	**4200-5B**
	Controls	22 L x 13 W x 24" (559 x 330 x 609 mm) 71 lbs (32 kgs)	77 lbs (35 kgs)	Consult Factory	Consult Factory	Consult Factory	Consult Factory
	HV Tank	one-piece design			Consult Factory		
	Shipping Size	24 L x 21 W x 30" H (610 x 533 x 762 mm) 95 lbs (43 kgs)	112 lbs (51 kgs)	Consult Factory			

ACCESSORIES INCLUDED

- User guide
- Calibration Certificate

- Cables
  Input Power 7' (2 m)
  High Voltage 20' (6 m)
  Ground 20' (6 m)
  Return 20' (6 m)
  Power interconnect 25' (8 m), for models 4120-10, 4160-5, 4200-5

Options

☑ **Positive polarity output**

☑ **Custom cable lengths**

☑ **Calibration data**

☑ **Hand cart (option for models 4120-10, 4160-5)**

☑ **Ground and Discharge Sticks**

GS100-2

- Model GS100-2 (100 kV) or GS160-2 (160 kV) Ground Stick, 2-piece design, with a 25' (7 m) ground lead
- Model GS30 (30 kV) Ground Stick, single piece design, with a 25' (7 m) ground lead
- Model DS100-2 Discharge Stick (100 kV, 100 kΩ, 50 kJ), 2-piece design with a 25' (7m) ground lead
- Model GSDS-30 (30 kV) Combination Ground/Discharge Stick, with a 25' (7 m) ground lead

☑ **Safety Hand Switch with 10' (3 m) lead**

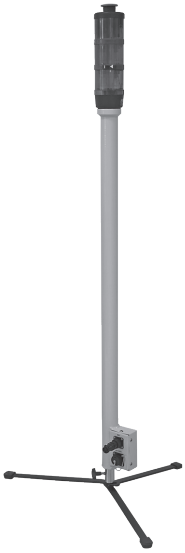
☑ **Safety Foot Switch with 20' (6 m) lead**

For "B" Models Only

☑ **Windows software for connection to PC**

☑ **Flashing Light, Mounted or Stand-alone**

- Flashing Light, Mounted, Telescoping Pole
- Flashing Light with Security Circuit, magnetic base
- Red/Green Light, Folding Base, Security Circuit, E-stop, 20' (6 m) Cable



Environmental Operating Conditions

- 10-40°C, indoor/outdoor in fair weather
- Humidity <95% non-condensing
- Altitude <3300 ft (1000 meters)

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Specifications are subject to change without notice. Doble is an ISO 9001 & ISO/IEC 17025 & 17034 Certified Company. Doble is an ESCO Technologies Company.
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