

# Very Low Frequency AC Technology – VLF

**Cable & Motor/Generator  
High Voltage Withstand  
& Diagnostic Testing**

High Voltage, Inc.  
Copake, NY USA  
VLF leader since 1997





# HIGH VOLTAGE<sup>®</sup>

VLF HIPOT INSTRUMENTS

## HVI – The World's VLF Source Made in the USA

90 countries served since 1998

- **Greatest Model Selection**
- **Highest Voltages Available**
- **Highest Power Ratings Delivered**
- **Only VLF Thumper Produced**
- **Rugged oil filled non-electronic design offers extreme reliability and ease of field service if ever necessary**
- **Latest solid state, computer controlled wireless designs offered**

HVI offers more models and higher voltage models than any other vendor in the world. Models range from 30 kVac – 200 kVac peak, offering from 0.4  $\mu$ F to 50  $\mu$ F of load capability. Load ratings shown below are at the lowest frequency.

### Original Patented Transformer Based Design

VLF-30CM	0-30 kVac, 0.1 Hz, load rated to 0.4 $\mu$ F
VLF-4022CM	0-44 kVac, 0.1 Hz - 0.02 Hz, load rated to 5.5 $\mu$ F
VLF-50CM	0-50 kVac, 0.1 Hz - 0.01 Hz, load rated to 50 $\mu$ F
VLF-6022CM	0-62 kVac, 0.1 Hz - 0.02 Hz, load rated to 5.5 $\mu$ F
VLF-65CMF	0-65 kVac, 0.1 Hz - 0.01 Hz, load rated to 22 $\mu$ F
VLF-90CMF	0-90 kVac, 0.1 Hz - 0.02 Hz, load rated to 2.75 $\mu$ F
VLF-12011CMF	0-120 kVac, 0.1 Hz - 0.01 Hz, load rated to 5.5 $\mu$ F
VLF-200CMF	0-200 kVac, 0.1 Hz - 0.02 Hz, load rated to 3.75 $\mu$ F
VT33	VLF: 0 - 33 kVac, 1.0 $\mu$ F @ 0.1 Hz Thumper: 0 - 13 kVdc @ 760 Joules

### Solid State Computer Controlled Models

VLF-34E	0-34 kVac, 0.1 Hz - 0.01 Hz, load rated to 5.0 $\mu$ F
VLF-65E	0-65 kVac, 0.1 Hz - 0.01 Hz load rated to 5.0 $\mu$ F

**The HVI VLF technology is protected  
under U.S. Patent # 6,169,406**

## Very Low Frequency AC Testers

### *AC testing of Cables, Motors & Generators is now easier than ever.*

Since the introduction of the High Voltage, Inc. line of portable and affordable VLF hipots, there is a practical method of AC field testing highly capacitive loads, particularly cables and rotating machinery. High Voltage, Inc. offers a full line of VLF AC Hipots from 30 kVac to 200 kVac with models that can test up to 50  $\mu$ F of load, cables over 50 miles in length and the largest of generators or motors. Use VLF for **AC Withstand** stress tests and/or as a voltage source for **Tan Delta** and **Partial Discharge Diagnostic Testing**. HVI offers both its original, patented long proven oil filled power supply models with analog controls and its all new solid state, computer-micro controlled wireless design. Both have diagnostic accessories available.

**SINCE 1998**, HVI has produced the most economical, rugged, and reliable VLF products available. Our electro-mechanical control and our oil filled HV power supply designs are **extremely dependable**, and if necessary, more easily field serviced than the electronic designs. **The HVI design has a proven record with well over 2000 units in service worldwide.** The HVI VLF design offers the best of everything, with manual, easy to use controls but also sophisticated data collection. Electric utilities and industrials have long recognized the benefit of our technology. HVI knows how to build long lasting field test equipment. HVI now also offers the latest in solid state design VLF units that offer many benefits, like automatic programmable control and wireless communications.

All HVI VLF designs produce a **sine wave output** that meets the requirements of world standards, permitting it to be used as a voltage source for **Tan Delta** and **Partial Discharge** diagnostic testing. A sine wave producing VLF is required to perform these tests. Keep all options open by choosing a sine wave design, like the HVI VLF.

## Why Buy HVI VLF Products?

- **HVI Design - Portable, Affordable, Rugged, Reliable, & Long Proven**
- **HVI Support & Service – Best Customer Support, Ship from Stock, Instant Factory Help Quick Service Turn Around, Repair & Cal. Locations Worldwide, Reps in over 90 countries**

### What is VLF?

VLF stands for Very Low Frequency. A VLF hipot is an AC output high voltage instrument. HVI VLF products provide sinusoidal AC voltage but at 0.1 Hz - 0.01 Hz, compared to the 50/60 Hz output of conventional AC test sets. It is still an AC voltage with sinusoidal polarity reversals every half cycle. The VLF instrument is used to provide a simple go/no-go, or pass/fail, withstand test. Also, VLF instruments can be used as the voltage source for performing off-line **Partial Discharge** and **Tan Delta** cable diagnostic testing, both from HVI.

### Why VLF?

VLF test sets are used to field test high capacitance loads like cables and motors/generators. The lower the frequency of an AC source, the lower the current and power required to apply a voltage to a capacitive load like a cable. At 0.1Hz, it requires 600 times less power to test a cable than at 60 Hz. The HVI VLF instruments permit users to field test long cables and large generators with a portable and affordable test set. A 100 lb VLF instrument can do the job of a multi-ton 60Hz AC test set. Cables should be tested with AC voltage. With the HVI VLF products, it can be done with a practical, economical, and easy to use package.

### When and Where Is VLF Used – Cable & Rotating Machinery

The principal use of VLF is testing medium and high voltage shielded power cables. A long cable may have many microfarads of capacitance. To AC high voltage test this cable requires the use of VLF technology. An AC voltage test is the best way to verify the AC integrity of a cable. If a cable can't hold 2 – 3 times normal voltage, it is not healthy and an in-service failure is likely. Use the VLF to cause defects to fail during the test. Find the fault, make the repair or replacement, and be left with a better cable. It is especially valuable for **verifying a cable after installation or repair**: far better than using a DC hipot, 5kV megohmmeter, hot stick adaptor, or soak test, none of which provide meaningful information about a cables ability to

PEAK  
KILOVOLTS

withstand several times normal AC voltage. IEEE 400, 400.2, & 433, VDE 0276, CENELEC HD 620/621, SANA 10198, NEN 3620 and IEC 60502-2 standards all define VLF testing.

VLF is also very useful for testing **large rotating machinery**, since it provides a portable and affordable method of field testing coils and is sanctioned by the IEEE 433-2009 standard.

### Partial Discharge & Tan Delta VLF Cable Diagnostic Testing

The VLF hipot alone provides a withstand, or proof test. It can also be used as the voltage source for off-line **Partial Discharge** and **Tan Delta** cable diagnostic testing. HVI can serve the needs of the industry for cable and generator testing better than any other. Contact HVI for additional information on other cable testing methods and products available.

*For more information on VLF testing, visit [www.hvinc.com](http://www.hvinc.com)*

### Benefits of HVI VLF AC Hipots

- *Portable and affordable*
- *All models feature a true sinewave output*
- *Waveform is independent of load capacitance between 0.01  $\mu$ F and maximum load*
- *Highest load ratings available*
- *Highest voltage models available*
- *Simple and easy operation*
- *AC testing does not degrade good cable insulation*
- *Harmful space charges are not injected into the cable insulation*
- *No traveling waves are generated*
- *BNC scope output for waveform viewing*
- *Rugged and reliable design less prone to failure from transients*

### Two Design Choices

Patented original, electro-mechanical, transformer designs and the latest solid state computer controlled designs available from HVI.

POS

NEG

### VLF-30CM(F) Best for testing 5 kV - 15 kV cables

Our smallest VLF model, the VLF-30CM approaches the size and cost of a DC hipot and is designed for quick & easy short-run cable testing. It can test up to 0.4  $\mu\text{F}$  of load, about 4000 feet (1200 m) of a typical 15 kV class cable. Small, light, inexpensive, and easy to use. Now there's no reason not to use VLF.

**Quick & Simple**  
15 kV cable testing  
Low Cost  
Easy to Use  
Small & Light



**Input:** 120 volts, 60 Hz, 5 A peak, 2.5 A average  
or 230 volts, 50/60 Hz, 3 A peak, 2A average (F suffix)

**Output:** 0 – 30 kVac peak, 0.1 Hz, sinusoidal

**Duty:** Continuous

**Load Rating:** 0.4  $\mu\text{F}$

**Metering:** Voltmeter: -30 kVac – 0 – +30 kVac  
Charging Current meter: 0 – 50 mA peak

**HV Cable Output:** Shielded EPR output cable - 20 ft. (6 m)

**Size & Weight:** 15" w x 11.5" d x 22" h, 82 lbs. (88 lbs. - F version)  
381 mm w x 292 mm d x 559 mm h, 39 kg  
(42 kg - F version)

### VLF-4022CM(F) Two piece portability for field testing 25 kV & 35 kV cables

This model, with its 44 kVac peak output, is suitable for all testing of 25 kV cable and Maintenance testing on 35 kV cable. Its high load capacity enables it to test up to approximately 10 miles of cable (at .02 Hz), depending on type. This model includes a charging current and load capacitance meter, and a center zero peak kilovolt output meter.



**Two-piece easy portability**  
(see page 7)



**Input:** 120 volts, 60 Hz, 10 A peak, 5 A average  
or 230 volts, 50/60 Hz, 6 A peak, 2.5 A average (F suffix)

**Output:** 0 – 44 kVac peak, 0.1/0.05/0.02 Hz sinusoidal

**Duty:** Continuous

**Load Rating:** 1.1  $\mu\text{F}$  @ 0.1 Hz, 2.2  $\mu\text{F}$  @ 0.05 Hz, & 5.5  $\mu\text{F}$  @ 0.02 Hz

**Metering:** Voltmeter: Center Zero -45 – 0 – +45 kVac peak  
Charging Current meter: 0 – 100 mA peak  
Load capacitance meter: 0 – 6 Microfarads

**Cable Lengths:** Shielded RG/8U output cable - 20 ft. (6 m)  
Interconnect cable - 10 ft. (3 m)

**Size & Weight:** Controls: 22" w x 11.25" d x 15.25" h, 50 lbs.  
559 mm w x 286 mm d x 387 mm h, 23 kg  
HV Tank: 14.5" w x 10.5" d x 19" h, 72 lbs.  
368 mm w x 267 mm d x 483 mm h, 33 kg

### VLF-6022CM(F) Two piece portability for testing up to 35 kV cable systems - Wind Farms

This model, with its 62 kVac peak output, is suitable for testing cables rated up to 35 kV. Its high load capacity enables it to test up to approximately 10 miles of cable (at .02 Hz), depending on type. This model includes an enhanced features package: a charging current and load capacitance meter, test dwell timer, and polarity indicating lights.



**Network Systems &  
Wind Farm Model**

**Two-piece easy portability**



**Input:** 120 volts, 60 Hz, 15 A peak, 7.5 A average  
or 230 volts, 50/60 Hz, 8 A peak, 4 A average (F suffix)

**Output:** 0-62 kVac peak, 0.1 Hz - 0.02 Hz

**Duty:** Continuous

**Load Rating:** 1.1  $\mu\text{F}$  @ 0.1 Hz, 2.2  $\mu\text{F}$  @ 0.05 Hz, & 5.5  $\mu\text{F}$  @ 0.02 Hz

**Metering:** Voltmeter: 0 – 65 kVac peak  
Charging Current meter: 0 – 100 mA peak  
Load capacitance meter: 0 – 6 Microfarads  
Settable test duration timer

**Cable Lengths:** Shielded EPR output cable - 20 ft. (6 m)  
Interconnect cable - 10 ft. (3 m)

**Size & Weight:** Controls: 26" w x 13" d x 16" h, 75 lbs.  
660 mm w x 330 mm d x 406 mm h, 34 kg  
HV Tank: 15" w x 10.25" d x 21.5" h, 120 lbs.  
381 mm w x 260 mm d x 546 mm h, 54 kg

All HVI VLF models are labeled and metered for peak voltage, not rms. When testing, use the peak voltage values given in your specification.

**VLF-50CMF**      **Highest  $\mu\text{F}$  rating available: 5  $\mu\text{F}$  - 50  $\mu\text{F}$  @ 0.1 Hz - 0.01 Hz**

The **VLF-50CMF** is the highest power VLF unit we offer. It is rated for 5  $\mu\text{F}$  at 0.1 Hz and can increase its output to 50  $\mu\text{F}$  at 0.01 Hz, capable of testing up to **50 miles of 15 kV and 25 kV cable**. It is ideal for very long cable runs, like long feeders, wind farm applications, submarine cables, and others. It comes as pictured, including cable reels with 100' of high voltage and ground cable.

**Input:** 230V +/-10%, 50/60 Hz, single phase, 30 A peak, 25 A avg.  
**Output:** Sinusoidal 0 – 50 kVac peak, 0.1, .05, .02 and .01 Hz frequency  
**Duty:** Continuous  
**Test Capacitance:** 5.0  $\mu\text{F}$  @ .1 Hz, 10.0  $\mu\text{F}$  @ .05 Hz, 25.0  $\mu\text{F}$  @ .02 Hz, 50.0  $\mu\text{F}$  @.01 Hz

Remove the wheels for van mounting.  
 Simple installation – ready to go.

**Kilovoltmeter:** 3.5 in., 0 – 60 kVac peak 2% FS Accuracy  
**Current Load:** 3.5 in., 0 – 200 mAac peak 5% FS Accuracy  
**Capacitance Meter:** 0 – 6  $\mu\text{F}$  with x1 & x10 ranges  
**Sizes:**  
 Controls: 17" w x 11" d x 9.5" h, 20 lbs.  
           432 mm w x 280 mm d x 241 mm h, 9 kg  
 Power Section: 20" w x 14" d x 27" h, 160 lbs.  
           508 mm w x 356 mm d x 686 mm h, 73 kg  
 HV Tank size: 13.5" w x 19" d x 23" h, 310 lbs.  
           343 mm w x 483 mm d x 584 mm h, 141 kg  
 Complete Trolley: 28" w x 60" d x 51" h, 775lbs  
           711 mm w x 1524 mm d x 1295 mm h, 352 kg

**Output cable length:** Shielded X-Ray/Ground on reels - 100 ft. (30 m)

**VLF-65CMF**      **Ideal for long 35 kV cable runs at Wind Farms**

The **VLF-65CMF**, 65 kV peak output, is a higher power model designed to test very long cables rated up to 35kV. It offers the complete controls package including Cable Burn mode. Its cable reels provide 100' (30m) of HV and ground

**Input:** 230 V, 50/60 Hz, 30A peak, 25A average  
**Output:** 0 – 65 kVac peak, 0.1/0.05/0.02/0.01 Hz sinusoidal  
**Duty:** Continuous  
**Load Rating:** 2.2  $\mu\text{F}$  @ 0.1 Hz, 4.4 $\mu\text{F}$  @ 0.05 Hz  
           11  $\mu\text{F}$  @ 0.02 Hz & 22  $\mu\text{F}$  @ 0.01 Hz

**Metering:** Voltmeter: 0-75 kVac peak  
 Charging Current Meter: 0 – 200 mA peak  
 Load capacitance meter: 0 – 6 microfarads  
 User programmable test duration timer

**Cable Lengths:** Shielded EPR output cable – 100 ft. (30m)  
 Ground cable 100 ft. (30m)

**Sizes & Weight:**  
 Controls: 17" w x 11" d x 9.5" h, 20 lbs.  
           432 mm w x 280 mm d x 241 mm h, 9 kg  
 Regulator: 20" w x 14" d x 27" h, 160 lbs.  
           508 mm w x 356 mm d x 686 mm h, 73 kg  
 HV Tank: 15" w x 18" d x 22" h, 215 lbs.  
           381 mm w x 457 mm d x 559 mm h, 98 kg  
 Overall: 30" w x 60" d x 51" h, 704 lbs.  
 on Skid. 762 mm w x 1524 mm d x 1295 mm h, 320 kg

**VLF-90CMF**      **90 kVac voltage output yet still portable**

The **VLF-90CMF** offers 90kVac peak output voltage, suitable for testing cables rated 45 – 50kV. It is load rated for 0.55  $\mu\text{F}$  @ 0.1 Hz, capable of testing up to 2 miles of cable, five times that at 0.02 Hz. Pictured with optional hand truck.

**Input:** 230 V, 50/60 Hz, 20A peak, 15A average  
**Output:** 0 - 90 kVac peak, 0.1/0.05/0.02 Hz sinusoidal  
**Duty:** Continuous  
**Load:** .55  $\mu\text{F}$  @ 0.1 Hz, 1.1  $\mu\text{F}$  @ 0.05 Hz, 2.75  $\mu\text{F}$  @ 0.02 Hz  
**Metering:** Voltmeter: 0 – 100 kVac peak  
 Current Meter: 0 – 100 mA peak  
 Load capacitance: 0 – 6 microfarads  
 User programmable test duration timer

**Cable Lengths:** Shielded EPR output cable – 20 ft. (6m)  
 Interconnect cable - 10 ft. (3m)

**Sizes & Weights:**  
 Controls: 26" w x 13" d x 16" h, 75 lbs.  
           660 mm w x 330 mm d x 406 mm h, 34 kg  
 HV Tank: 15" w x 21" d x 29" h, 293 lbs.  
           381 mm w x 533 mm d x 737 mm h, 133 kg

VLF-50CMF



VLF-65CMF  
Wind Farm  
Model

Remove wheels for van mounting



VLF-90CMF



VLF-90CMF  
Only portable unit at 90 kV

Hand cart is optional.





One piece with casters, truck mounting blocks, skid, or separate components.



200 kVac

**The Testing Service & Electrical Contractor Model**

**VLF Thumper**

VLF: 33 kV @ 0.1 Hz @ 1  $\mu$ F  
 Thumper: 13 kV @ 760 joules  
 Burner: Alt. polarity discharge  
 TDR/Radar: Ready to go.



**VLF-12011CMF 69 kV Cable Withstand & 115 kV Cable Diagnostics**

The **VLF-12011CMF** provides a 120kVac peak output voltage, suitable for VLF hipot testing 69 kV cable and as a voltage source for partial discharge and tan delta testing of 115 kV cable. In addition to the standard controls described, this model also contains a Cable Burn mode. Cable reels provide 100' (30m) of HV and ground cable.

**Input:** 230 volts, 50/60 Hz, 30 A peak, 25 A average  
**Output:** 0 – 120 kVac peak, 0.1/0.05/0.02/0.01 Hz sinusoidal  
**Duty:** Continuous  
**Load Rating:** .55  $\mu$ F @ 0.1 Hz, 1.1  $\mu$ F @ 0.05 Hz  
 2.75  $\mu$ F @ 0.02 Hz, 5.5  $\mu$ F @ 0.01 Hz  
**Metering:** Voltmeter: 0 – 120 kVac peak  
 Charging Current Meter: 0 – 100 mA peak  
 Load capacitance meter: 0 – 6 microfarads  
 User programmable test duration timer

**Cable Lengths:** Shielded EPR output cable 100 ft. (30m)  
 Ground cable 100 ft. (30m)

**Sizes & Weight:** Controls: 17" w x 11" d x 9.5" h, 20 lbs.  
 432 mm w x 280 mm d x 241 mm h, 9 kg  
 Regulator: 20" w x 14" d x 27" h, 160 lbs.  
 508 mm w x 356 mm d x 686 mm h, 73 kg  
 HV Tank: 26" w x 20" d x 22" h, 390 lbs.  
 660 mm w x 508 mm d x 559 mm h, 177 kg  
 Overall: 30" w x 60" d x 51" h, 853 lbs.  
 762 mm w x 1524 mm d x 1295 mm h, 388 kg

**VLF-200CMF Highest voltage rating available**

The **VLF-200CMF** provides a 200 kVac peak output voltage, suitable for performing VLF hipot tests on 138 kV cable and as a voltage source for tan delta and partial discharge testing on 230 kV cable. The controls offer all the features of our other VLF models along with VLF Cable Burning. Trailer mount optional.

**Input:** 230 V Single phase, 80 A peak, 50/60Hz  
**Output:** 0 – 200 kVac peak, 100 mA. Bushing output – no cable provided  
**Load:** .75  $\mu$ F @ 0.1 Hz, 1.5  $\mu$ F @ 0.05 Hz, 3.75  $\mu$ F @ 0.02 Hz  
**Duty:** Continuous  
**Metering:** Voltage: 0 – 200 kVac peak 3.5" analog display  
 Current: 0 – 200 mAac 3.5" analog display  
**Controls:** HV On/Off, Motorized Voltage Control, Zero Start Interlock, External Interlock, Digital Dwell Timer, Capacitance Measuring Circuit, Cable Burn Mode, Fixed 120% Overload, Automatic Data Logger

**Size/Weight:** Controls: 24" w x 25.5" d x 71" h, 650 lbs.  
 610 mm h x 648 mm w x 1803 mm h, 295 kg  
 HV Tank: 59" w x 37" d x 87" h, 3700 lbs  
 1499 cm w x 2362 mm d x 2210 mm h, 1678 kg

**VT33(F) VLF & Fault Locator Combo 2 tools in 1 box**

The **VT33** is the worlds only combination VLF hipot and cable fault locator, or thumper. It is the complete tool for **AC testing and fault locating cables rated up to 25kV**. It offers a 33 kVac peak VLF output, VLF Cable Burn mode, and a 760 joule discharge output. It is fully TDR/radar ready.

**Input:** VT33: 120 V, 60 Hz, 10 A  
 VT33F: 230 V, 50/60 Hz, 5 A  
**VLF Hipot Output:** 0 – 33 kVac peak @ 0.1 Hz  
**Load Capability:** 1  $\mu$ F – more than 1 mile (1.6 km) of 15 kV & 25 kV cable  
**Discharge Output:** 0 – 13 kVdc @ 760 joules  
**Discharge Rate:** Every 8 seconds  
**VLF Burner:** Arcs cable every few seconds using cable energy to burn.  
**TDR Interface:** Arc Reflection & Current Impulse  
**Size & Weight:** 28" w x 26" d x 44" h, 245 lbs.  
 711 mm w x 660 mm d x 1118 mm h, 111 kg  
**Cable Outputs:** 50' (15 m) shielded HV cable & ground

**The "E" Series VLF Models      Solid State Design - Fully Automated w/PC App - Wireless**

The "E" Series of VLF products offer the latest in electronic design, with fully automated and programmable operation, data collection and reporting, and Tan Delta ready, all wirelessly controlled via custom software. There is no better VLF available. The two models shown below each have an optional **HVI designed Tan Delta** measurement accessory and **Partial Discharge** detection options are available from HVI and from others.

VLF-34E



"E" Series Front Panel



VLF-65E



0 – 34 kVac peak, Sinusoidal  
0.5 μF – 5.0 μF, 0.1 Hz – 0.01 Hz

Refer to the separate VLF-34E & VLF-65E brochures for details

0 – 65 kVac peak, Sinusoidal  
0.5 μF – 5.0 μF, 0.1 Hz – 0.01 Hz

**Typical Front Panel Controls      Electro-Mechanical Designed Models**



Data Logger Option



Plug into VLF panel  
Wireless to laptop  
With reporting software



HVI Founder & Inventor  
Stanley G. Peschel (1930 – 2002)



Holding the first portable & affordable  
VLF – 1998. A 40 kVac model.  
A breakthrough in VLF technology.

**Cable Diagnostic Testing Accessories for all HVI VLF Models**

HVI offers the accessories used for performing VLF Tan Delta and VLF Partial Discharge diagnostic testing for cables and rotating machinery. Some of the models offered are designed and produced by HVI and some are from other vendors, designed to function with the HVI VLF products. Other vendors also offer these accessories that may be used with the HVI VLF designs. **Models are available up to 200 kV peak.** Consult HVI for more details and refer to separate literature for each item.

**Tangent Delta ( $\delta$ ) or Loss Angle Measurement**



TD-34E  
34 kVac peak



TD-65E  
65 kVac peak



TDB-60  
60 kVac peak  
(since 1999)

**Partial Discharge Detection and Location  
& Tan Delta Measurement**



Shown is PDIX-70, 70 kV peak  
models to 200 kV available

## Application Help and Field Test Scenes

### Selecting a VLF Model

Considerations when selecting the right model: **voltage,  $\mu$ F rating,  $\mu$ F rating at 0.1Hz, & control features.**

**Voltage:** What is the cable voltage rating and what tests will be performed? Table from IEEE 400.2-2013.

Cable Rating	Installation	Acceptance	Maintenance
phase to phase	phase to ground	phase to ground	phase to ground
kVrms	kVrms (kVpk)	kVrms (kVpk)	kVrms (kVpk)
5	9 (13)	10 (14)	7 (10)
8	11 (16)	13 (18)	10 (14)
15	19 (27)	21 (30)	16 (22)
25	29 (41)	32 (45)	24 (34)
35	39 (55)	44 (62)	33 (47)
46	51 (72)	57 (81)	43 (61)
69	75 (106)	84 (119)	63 (89)



**$\mu$ F Rating:** VLF hipots are rated by the capacitance of the loads they can test. To select the right model, either the load capacitance must be known or the cable length if the  $\mu$ F/km,  $\mu$ F/ft, etc. is known.

**$\mu$ F Rating at 0.1 Hz:** If the VLF is to be used as a voltage source for performing Tan Delta and Partial Discharge testing, the load rating at 0.1 Hz is important, as this is the frequency most used for these tests. In some cases, 0.05 Hz frequency can be used. If the VLF is to be used for hipotting, then any frequency can be used.

**Control Features:** Are the automated, laptop controlled, etc. features of the "E" Series necessary or are the basic manual controls of our original design adequate, saving money and gaining other benefits?



**Comment:** A fifth consideration could be the vendor? Where it is made and serviced, how available is it, how quick is the service turnaround, and what is the vendors reputation. All HVI products are **Made in the USA** and most are in stock.



## Wind Farm 35kV Cables are Ideal for VLF Withstand Testing



VLF Acceptance Test per IEEE 400.2-2013  
All 3 phases  
@ 62 kVAC  
for 60 minutes

Cable system is newly installed needing a **VLF Withstand** to find defects and faulty workmanship. Find the bad spots.



200 kV VLF van in service, high voltage out thru top.

## VLF Options Available



Hand Truck  
Option  
for some  
models



Cable  
Reels

HV output cable attachments



## Other Cable Test & Fault Locating Products

### VLF Cable Testing & Fault Locating Van Ready Custom Packages

Instant & easy test van: HVI can mix and match products to deliver a custom made module to handle all your test and fault locating needs. Just drop it in your truck.



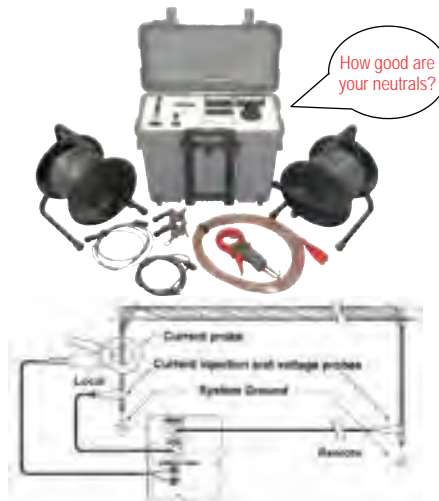
#### Can Include

- VLF Hipot
- Tan Delta
- Data Logger
- Thumper
- TDR/Radar
- UG Fault Finder
- Cable Reels
- DC Hipot
- and more

fault location

TDR/Radar display

### $\Omega$ -CHECK® Concentric Neutral Resistance Tester & Substation Ground Cable Integrity Check



How good are  
your neutrals?

[www.hvinc.com](http://www.hvinc.com)

All HVI Products are  
Made in the USA

**HIGH VOLTAGE**  
VLF HIPOT INSTRUMENTS

HIGH VOLTAGE, INC. ISO 9001: 2008

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