

# SCOPE

## HPT Series Hi-Pot Testers



Simple Solution for Dielectric Withstand Testing of Insulation

## The Product

The Dielectric-Withstand test or Hi-Pot test is used to evaluate the insulation condition of the test object. The Hi-Pot test is the opposite of a continuity test, assures no current will flow from one point to another and indicates the ability of DUT's Insulation to withstand High Voltage for a certain time. The Hi-Pot test is the best way to detect the defects in an electrical insulation due to poor workmanship during assembly or use of faulty/damaged components exists to an extent in any manufacturing environment, that can lead to a breakdown of the insulation during operation. In order to prevent the insulation breakdown of electrical products during operation, a Hi-Pot test is usually performed during the Manufacturing, Installation, Acceptance, Routine Repair and Maintenance.



SCOPE offers HPT Series of High Voltage Test Sets capable of injecting variable High Voltage from zero to maximum rated output voltage continuously. Wide range Hi-Pots, up to 50kV, are available in different output options such as power frequency AC or DC or AC-DC Combined. HPT Series is specifically designed for safe and accurate measurement of leakage current to evaluate insulation integrity of transformers, motors, insulators, cables etc. Years of Design, engineering and manufacturing experience have made HPT Series of High Voltage Testers the most durable, easily operated and best-designed sets in the segment.

## The Measurement

Any Device Under Test (DUT) will have some leakage current even under normal operating conditions, but only at the minute and safe levels. However, due to ageing or electromechanical stresses over a period of time, the degradation of insulation takes place and the amount of leakage current flowing through the DUT increases. By measuring the leakage current arising from the applied test voltage, through the Hi-Pot tester we can determine the quality/integrity of the insulation.

Hi-Pot tester injects a short-term high voltage between conductor and body earth/chassis/shield or armour of the DUT and the leakage current in mA is monitored as per the relevant testing standard of the DUT. If leakage current exceeds the recommended value, DUT is considered as failed to Pass the Dielectric Withstand Test / Hi-Pot Test. If the leakage current crosses the trip current setting, Hi-Pot automatically trips. So, the Hi-Pot test is typically used as a pass/fail or go/no-go test.

## Features

- User friendly and simple operation
- Compact, Lightweight and Housed in rugged transport case
- Ideal choice for testing dielectric withstanding capacity of insulation
- Available with the option of Combine or Separate Control Unit
- Analog or Digital meters is provided for displaying output voltage in kV and current in mA
- Different Protections / Interlocks to ensure user safety such as Variac Zero Interlock, Emergency Stop, Overcurrent Protection, Short Circuit Protection, Earth OK Interlock, Input Supply Protection etc.
- User-friendly indications such as Power ON, HV ON-OFF, Earth OK, Over / Under Voltage etc.
- Optional Timer, Foot / Hand Switch and Beacon / Buzzer for additional Safety
- Protective terminals to prevent any accidental contact with HV
- Automatic discharge upon shutdown

## Specifications

Parameters	HPT
Output Options	Power frequency AC or, DC or, AC-DC Combined
Output Indication	Analog Meter (Moving Coil) or, 3½ Digital Meter (Optional)
Adjustable Trip Current	$I_{max}$ and $I_{max}/2$ (Optional)
Voltage Resolution (@ kV range)	Analog Meter: 0.1kV ( $\leq 5kV$ ) / 0.2kV ( $\leq 15kV$ ) / 0.5kV ( $\leq 30kV$ ) / 1kV ( $\leq 50kV$ ) Or, Digital Meter: 0.1kV (Optional)
Current Resolution	Analog Meter: 1mA Or, Digital Meter: 0.1mA (Optional)
Measuring Accuracy	Analog Meter: $\pm 2\%$ Or, Digital Meter: $\pm 2\% \pm 1$ digit
Input Supply	230V AC $\pm 10\%$ , 50/60Hz $\pm 10\%$ , Single Phase Or, 110V AC $\pm 10\%$ , 50/60Hz $\pm 10\%$ , Single Phase (Optional)
Voltage adjustment	Manual (Standard) Or, Motorized (Optional)
Duty Cycle	15min ON, 10min OFF
Timer	1-999 Sec, in steps of 1 Sec (Optional)
Protections / Interlocks	Emergency OFF, Earth OK Interlock, Variac Zero Interlock, Overtemperature Protection, Input Supply Variation Interlock, Over Current & Short Circuit Protection, Interconnection Cable Interlock for Separate Control & HV Unit, Hand / Foot Switch Interlock (Optional)
Indications	Power ON, HV ON/OFF, Earth OK, Variac Zero, Over / Under Voltage
Cooling Type	Air Cooled (Dry Type Transformer)
Configuration	Combined HV and Control Unit up to 30kV (Optional Separate Unit) Separate HV and Control Unit beyond 30kV
Operational Temperature	0°C to 50°C, up to 95% RH (Non-Condensing)
Storage Temperature	-10°C to 55°C, up to 95% RH (Non-Condensing)

Note: Product Weight and Dimensions depend on the product configuration opted, contact us at [marketing@scopetnm.com](mailto:marketing@scopetnm.com) for further details.



Note: Product Images shown here are reference purpose only. The actual product may vary from the images shown in this catalogue.

## Standard Models Available

Model	Output Voltage		Max. Output Current option (Imax)				
	AC	DC	10mA	20mA	25mA	50mA	100mA
HPT 3A	3kV	-	✓	✓	✓	✓	✓
HPT 3D	-	3kV	✓	✓	✓	✓	✓
HPT 3C	2kV	3kV	✓	✓	✓	✓	✓
HPT 5A	5kV	-	✓	✓	✓	✓	✓
HPT 5D	-	5kV	✓	✓	✓	✓	✓
HPT 5C	3kV	5kV	✓	✓	✓	✓	✓
HPT 10A	10kV	-	✓	✓	✓	✓	✓
HPT 10D	-	10kV	✓	✓	✓	✓	✓
HPT 10C	7kV	10kV	✓	✓	✓	✓	✓
HPT 15A	15kV	-	✓	✓	✓	✓	-
HPT 15D	-	15kV	✓	✓	✓	✓	-
HPT 15C	10kV	15kV	✓	✓	✓	✓	-
HPT 20A	20kV	-	✓	✓	✓	✓	-
HPT 20D	-	20kV	✓	✓	✓	✓	-
HPT 20C	14kV	20kV	✓	✓	✓	✓	-
HPT 25A	25kV	-	✓	✓	✓	✓	-
HPT 25D	-	25kV	✓	✓	✓	✓	-
HPT 25C	17kV	25kV	✓	✓	✓	✓	-
HPT 30A	30kV	-	✓	✓	✓	-	-
HPT 30D	-	30kV	✓	✓	✓	-	-
HPT 30C	21kV	30kV	✓	✓	✓	-	-
HPT 40A	40kV	-	✓	✓	✓	-	-
HPT 40D	-	40kV	✓	✓	✓	-	-
HPT 40C	28kV	40kV	✓	✓	✓	-	-
HPT 50A	50kV	-	✓	✓	✓	-	-
HPT 50D	-	50kV	✓	✓	✓	-	-
HPT 50C	35kV	50kV	✓	✓	✓	-	-

## Model Example

Series	Voltage	Output Type	Type Code	Final Model Name
HPT	50kV	AC	A	HPT 50A
	50kV	DC	D	HPT 50D
	50kV DC & 35kV AC	AC & DC Both	C	HPT 50C

## Scope of Supply

Items		HPT xxA	HPT xxD	HPT xxC
	Control Unit	As per Order		
	HV Unit	As per Order		
	Combined HV and Control Unit	As per Order		
	3m long HV Output Cable with Lug at instrument end	-	-	1 No
	3m long HV Output Cable with Plug at instrument end	1 No	1 No	-
	3m long Operational Earthing Cable with Lug at instrument end	-	-	1 No
	5m long Master Earthing Cable	1 Set	1 Set	1 Set
	3m long Mains Supply Cable	1 No	1 No	1 No
	3m long Communication Cable (Applicable for Separate Control Unit)	1 No	1 No	1 No
	HVAC Connection Rod	NA	NA	1 No
	HVDC Connection Rod	NA	NA	1 No
	Corona Ring with ball	NA	NA	1 No
	Test Lead Set (as per Order Code) with Carrying Case	1 Set	1 Set	1 Set
	Factory Test & Calibration Report	1 No	1 No	1 No
	Operation Manual	1 No	1 No	1 No
	Spare Fuses	1 Set	1 Set	1 Set



## Test Lead Set Configuration

Description	Test Lead Set Configuration		
	3m TLS	5m TLS	10m TLS
1 x HV Output Cable	3m	5m	10m
1 x Operational Earthing Cable (For HPT xxC)	3m	5m	10m
1 x Mains Input Cable	3m	5m	5m
1 x Master Earthing Cable	5m	5m	10m
1 x Communication Cable	3m	3m	3m

## Ordering Code

Example : HPT 50D **10 W 1 N N N F F 3 R I N** #

HPT XXX

nnn	Max. Current @ Max. Voltage											Customised	Z
X	Combined HV & Control Unit											None*	N
W	Separate HV & Control Unit											Industrial Plug	V
1	<b>Analog Meter with Manual Variac*</b>											Universal Plug	U
2	Analog Meter with Motorised Variac											<b>Indian Plug*</b>	I
3	Digital Meter with Manual Variac											110V ± 10%, 50/60Hz AC Input	Q
4	Digital Meter with Motorised Variac											<b>230V ± 10%, 50/60Hz AC Input*</b>	R
N	None*											Customized Length of Test Lead Set	Z
1	Adjustable Trip Current											10m Test Lead Set	M
2	Timer											5m Test Lead Set	T
B	Adjustable Trip Current & Timer											<b>3m Test Lead Set*</b>	<b>3</b>
N	None*											Reserved	F
1	Hand / Foot Switch											Reserved	F
2	Beacon / Buzzer											Customised	Z
B	Hand / Foot Switch & Beacon / Buzzer											None*	N

Note:

\*- Standard Feature/Accessory

#- HPT 50D (Order Code : 10W1NNNFF3RIN) - DC : 50kV and 10mA, Separate HV & Control Unit, Analog Meter with Manual Variac, 3m Test Lead Set, 230V ± 10%, 50/60Hz AC Input, Indian Plug.

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