

GE Energy

# Instrument Transformers

*Over 50 Years of Rugged, Reliable,  
and Innovative Products*



imagination at work

# HY-BUTE-60

## Over 50 Years of Hy-Bute-60\* Insulation

GE Energy's Hy-Bute-60\* molded insulation has stood the test of time. While other insulation materials have come and gone, GE's Hy-Bute-60 molded butyl has become the standard for durability by which all others are measured. One-half of a century and going strong, Hy-Bute-60 is truly GE's version of "black gold."

But beauty isn't just skin deep. GE's rigorous testing requirements go beyond IEEE® routine requirements. Impulse, partial discharge, and accelerated life tests all add up to a transformer that is over-engineered and tested to provide a long operating life—even in the harshest environments.

Ultimately, GE's instrument transformers manufactured with Hy-Bute-60 offer a measurable difference in durability, which pays back in the form of a lower total cost of ownership.

### Hy-Bute-60 continues to provide the following timeless advantages:

- Legendary durability and ruggedness
- Inherent safety – will not shatter
- Will not crack, even in extreme cold
- Does not support combustion
- No carbon residue from flashover results in super arc track resistance and long life
- Mounting flexibility – any orientation is possible
- No maintenance – unlike oil-filled units
- No environmental issues – unlike oil-filled units
- Over 50 years of industry acceptance

OVER FIFTY YEARS AGO, HY-BUTE-60 BROUGHT THE FIRST TRULY MAINTENANCE-FREE, OUTDOOR INSTRUMENT TRANSFORMERS TO THE INDUSTRY.



# ACCUBUTE

## Accubute\* Instrument Transformers

*Over 15 Years of Leadership in High Accuracy*

With solid-state metering and relay technology common in the energy industry today, the need for highly accurate instrument transformers to serve these devices is greater than ever. GE Energy's Accubute\* instrument transformer technology provides the accuracy needed for these applications.

Since being introduced as the first dry-type high-accuracy transformer solution in 1991, the Accubute line has grown to a portfolio that includes a wide variety of voltage classes and BIL levels—even models within GE's substation-capable Super-Bute\* line!

GE's Accubute accuracy standard specifies that the ratio and phase angle error of each Accubute instrument transformer will be no greater than +/- 0.15% for voltage transformers, and this same tolerance applies down to 5% of rated primary current for current transformers. This increased accuracy can pay for itself through inventory reduction, and/or improved billing accuracy.

Accubute instrument transformers provide industry-leading performance over a wide dynamic range. The performance advantage of the Accubute line translates directly into an economic advantage.

**Some of the benefits of the versatile Accubute line include:**

- Meets IEEE high accuracy standards
- High accuracy over an extended current range
- High potential for inventory reduction
- Certification of more accurate and equitable billing
- Full line of voltage classes available



GE ENERGY'S ACCUBUTE\* INSTRUMENT TRANSFORMERS MAINTAIN SUPERIOR ACCURACY AND ARE SPECIFICALLY TAILORED FOR TODAY'S ELECTRONIC METERING AND RELAY APPLICATIONS.

# SUPER BUTE

## Super-Bute\* Instrument Transformers

*Experience the benefits of dry-type construction in voltages up to 69 kV*

### **Low Maintenance**

Dry-type construction eliminates oil monitoring responsibilities as well as leakage concerns, while the molded butyl insulation eliminates breakage and vandalism problems. Corrosion-resistant construction defies moisture, oxidation, and contaminants.

### **Lower Total Owning Cost**

Dry-type transformers are more economical when you consider the added space requirements and maintenance costs of oil-filled units.

### **Extra Creep and Strike**

This is achieved even with the reduced space requirements compared to an oil-filled unit. In fact, most of GE's Super-Bute transformers have creep distances equal to the requirements for the next-level voltage class!

### **Top Accuracy**

Many Super-Bute models are available as part of GE's high-accuracy Accubute portfolio, giving you the perfect combination of superior accuracy at high voltages.

### **High Overcurrent Capability**

All Super-Bute current transformers rated 400/800 amperes and above have a bar-type primary, which allows the short-time mechanical current rating to be virtually unlimited.

### **Compact Size**

Super-Bute transformers require up to 30% less height and 40% less floor space than oil-filled designs.

### **Higher Thermal Ratings**

Unique current transformer construction features well-distributed primary windings as well as large primary and secondary conductors that result in higher rating factors than those available in oil-filled designs.



WHEN SUPER-BUTE PERFORMANCE MEETS ACCUBUTE ACCURACY, THE RESULT IS A ROBUST INSTRUMENT TRANSFORMER PERFECTLY DESIGNED TO MEET THE MODERN NEEDS OF TODAY'S UTILITIES.

# ACCUBUTE

## Accubute Available Instrument Transformers

Since its introduction in 1991 with just a few models, GE's Accubute portfolio has expanded to include all voltage and BIL classes shown. Accubute models are available even on GE's line of high-voltage Super-Bute transformers that range in voltage from 24–69 kV. This combination of

superior accuracy at high voltage levels is an example of the innovation that has made GE a world leader in IT technology. Additional models and voltage classes may be available with Accubute technology upon request.

Voltage Transformers						Current Transformers					
Indoor			Outdoor			Indoor			Outdoor		
BIL (kV)	NSV (kV)	Model	BIL (kV)	NSV (kV)	Model	BIL (kV)	NSV (kV)	Model	BIL (kV)	NSV (kV)	Model
75	7.2	JVM-4A	75	7.2	JVW-4A	60	5	JCM-3A	60	5	JCW-3A
110	14.4	JVM-5A	110	14.4	JVW-5A	60	5	JKM-3A	60	5	JKW-3A
125	24	JVM-6A	125	24	JVW-6A	60	5	JCB-3A	60	5	JCD-3A
			150	34.5	JVW-7A	75	8.7	JKM-4A	75	8.7	JKW-4A
			150	24	JVT/JVS-150A	75	8.7	JCM-4A	75	8.7	JCW-4A
			200	34.5	JVT/JVS-200A	75	8.7	JCB-4A	75	8.7	JCD-4A
			250	46	JVT/JVS-250A	110	15	JKM-5A	110	15	JKW-5A
			350	69	JVT/JVS-350A	110	15	JCM-5A	110	15	JCW-5A
						110	15	JCB-5A	110	15	JCD-5A
									150	25	JKW-6A
									150	24	JKW-150A
									200	34.5	JKW-200A
									250	46	JKW-250A
									350	69	JKW-350A

FOR FULL SPECIFICATIONS ON IT MODELS, PLEASE REFER TO GE'S INSTRUMENT TRANSFORMER BUYER'S GUIDE AVAILABLE ON THE WEB, OR CONTACT YOUR LOCAL GE SALES REPRESENTATIVE.

# Uncompromising GE Performance and Reliability

Quality and reliability is always a top priority at GE, and our instrument transformers are no exception. In addition to IEEE routine testing requirements, GE instrument transformers undergo a battery of tests designed to ensure manufacturing consistency and maximize life expectancy.

An accelerated life test program has been in place since 1988 to monitor and ensure IT reliability. This database of information is now quite mature and is used to help predict in-service results.

Going back several decades, statistical reliability analyses of large product installations have helped us continually improve our products, highlight application problems, and keep ahead of ever-increasing customer expectations.

## **ANSI® and IEEE Standard Tests**

### *Applied Potential Test*

- Checks insulation between windings and windings to ground

### *Induced Potential Test*

- Checks insulation within windings (2X normal turn to turn)

### *Accuracy and Polarity Test*

- Checks ratio and phase angle at highest rated burden (10% and 100% rated load on CTs)

## **Additional Performance Controls**

### *VT Accelerated Life Test*

- Weekly process control audit
- Unit tested at 180% rated voltage, 180 HZ
- Minimum expectation 1000 hours

### *Tear-Down Analysis*

- Factory failures
- Field returns – root cause analysis
- Competitive evaluation

### *Field Performance Tracking*

- Establishes benchmark for reliability growth
- Helps GE demonstrate product performance
- Helps customer pinpoint system problems
- Can be correlated to accelerated life tests

## **GE-Specific Routine Testing**

### *Impulse Test*

- Key short-term reliability screen for VTs
- Assures each unit meets BIL rating before installation

### *Partial Discharge Test*

- Key long-term reliability screen for CTs/VTs
- Reduces chance of failure from internal erosion of insulation system
- As many as four different connections tested

### *Repetitive Impulse Test on CT Secondaries*

- Special GE test that is superior to IEEE routine induced voltage test for checking inter-turn insulation: uses steep wave front voltage and checks for leakage current
- Key screen to ensure relay and accuracy reliability

### *CT Minimum Burden Accuracy Test*

- GE standard test on all 0.15 accuracy CTs at 100% of rated current. (Accubute transformers)
- This GE industry-leading practice has been in place for years and has become part of the IEEE Standard for High Accuracy Transformers

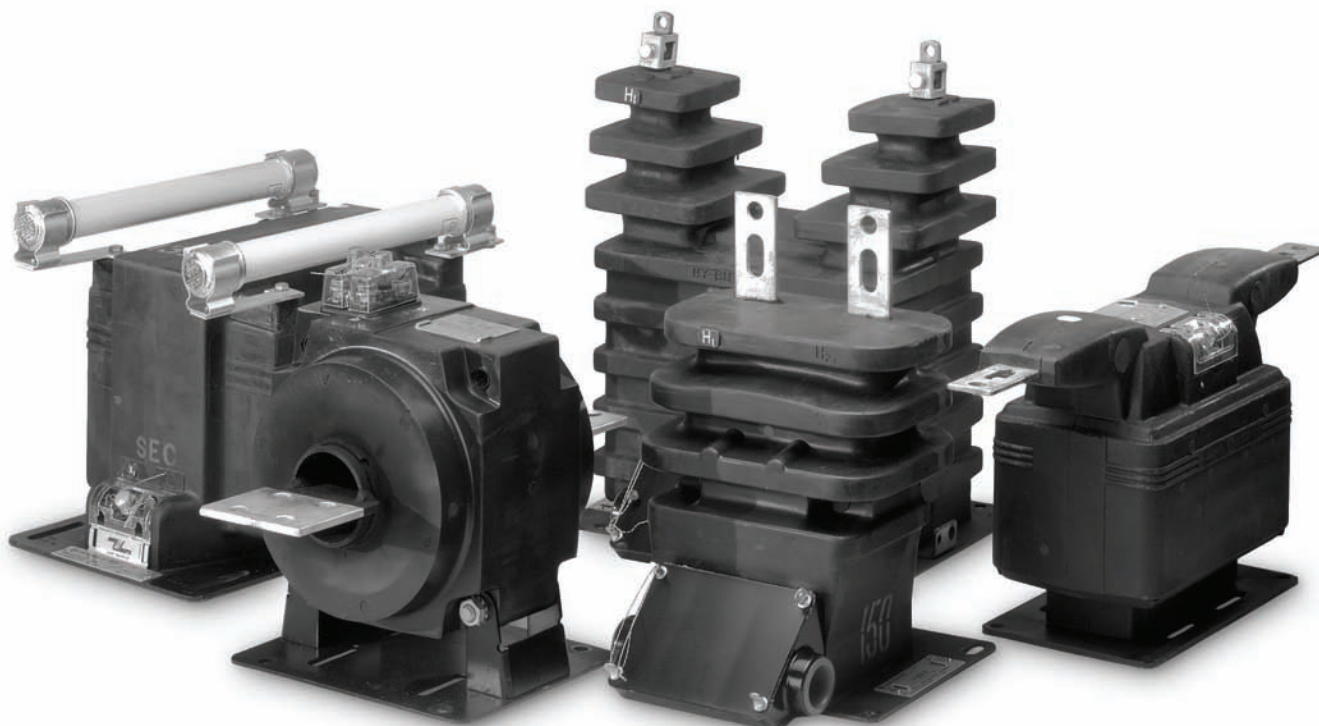
# Proven reliability. Superior accuracy.

## Proven dependability. Superior accuracy.

GE Energy's durable, reliable, and accurate instrument transformers have set the standard in the utility industry for over 50 years. History has shown that many "modern" designs have come and gone, resulting in costly change-out procedures for utilities. GE's commitment to innovation will always be guided first and foremost by the goal of utmost

reliability. Building on that foundation, we lead the way in dry-type high accuracy and offer the broadest line in the industry today.

For more information or to purchase, please contact your local GE sales representative. Additional product information is available on our website at, [www.ge.com](http://www.ge.com).



## HY-BUTE-60

The industry standard for dry-type insulation since 1956.

## ACCUBUTE

An industry leader in IT accuracy since 1991.

## SUPER BUTE

The benefits of dry-type transformers in voltages up to 69 kV since the 1960s.

For more information, please contact  
(603) 749-8250 or our toll free number  
(866) 973-8585.

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imagination at work