



Resin Cast, Medium Voltage  
**INSTRUMENT TRANSFORMERS**

Conforms to International Standards



*Pioneer in the field of Instrument Transformers*

**Emerging  
Technology**

**JSL INDUSTRIES LTD.**

*Engineering Excellence  
Since 1966*



ISO 9001 : 2015



## Introduction

Since 1966, JSL Industries Ltd., a name ever trusted & reliable in Switchgear Industries for supplying Quality & Durable products. JSL is a leading manufacturer of Medium Voltage Instrument Transformers for last Five decades. Over a period, JSL has spreaded it's wings to all major Industries and Power Plants. The Product range also includes Outdoor type Instrument Transformers up to 245kV, LT Motors up to 355 frame as per IS: 12615, Motor starters (DOL, Star-Delta, Auto transformer) and LT Switchboards.

JSL is introducing a new Series of Compact and Cost effective Resin Encapsulated Medium Voltage Instrument Transformers. The Instrument Transformers, as the name suggests are used to supply currents or voltages to the measuring instruments and protective devices. Their role in Power system is of prime importance as they accurately & proportionately step down the primary Input quantities.

## Infrastructure

At JSL, the manufacturing facility has been up-graded with a **State-of-Art** Plant & machinery, comprising of modern Automatic Pressure Gelation machines and other requisite equipments for reliable manufacturing. It will enable the company to supply High Quality Products with faster delivery. A team of qualified professionals employed is working round the clock for giving technical support and providing solutions to the valued Customers.



## Design

The Range is available for all desired Applications and demand of Switchgears & Control gears projects. They are compact; robust; aesthetically superior and all issues are taken care for trouble free operations. The Product is designed using Innovative Ideas & Emerging Technology, which comprises of distinct features. All routine tests are performed on every products according to relevant Standard Specifications before dispatch from factory.



Type tested as per IEC:61869 (1, 2 & 3)



## Product Specifications

Parameters	Current Transformers	Potential Transformers
Highest System Voltage (kV)	← 3.6, 7.2, 12, 24, 36 →	
Basic Insulation level (kV/kVp)	← 10/40, 20/60, 28/75, 50/125, 70/170 →	
Insulation Class	← B (better class offered on request) →	
Rated Prim. Current/Voltage	10 to 6300 Amp.	3.3, 6.6, 11, 22, 33 kV
Rated Sec. Current/Voltage	5, 1, 0.577 Amp.	110/V3, 110/3, 110 Volts
Rated Burden (VA)	2.5 to 60	10 to 300
Thermal Burden (VA)	-	400
Rated STC / Rated VF	upto 40kA, 1/3 seconds	Refer below given table
Class of Accuracy	0.2S, 0.2, 0.5S, 0.5, 1.0, 3.0 5P5, 5P10, 5P15, 5P20	0.2, 0.5, 1.0, 3.0 3P, 6P

- Higher Insulation Level can be offered on request
- Custom requirements can be developed on request.

## Rated Voltage Factor

System of Neutral Grounding	Rated Voltage Factor
Between phases & between Star point and Earth in any network	1.2 Continuous
Between phase and Earth in any Effectively earthed neutral system	1.2 Continuous & 1.5 for 30 seconds
Between phase and Earth in a non-effectively earthed neutral system with Automatic earth-fault tripping	1.2 Continuous & 1.9 for 30 seconds
Between phase and earth in an Isolated neutral system or in a Resonant earthed system without automatic earth-fault tripping	1.2 Continuous & 1.9 for 8 hours

## Precautions

- ❖ CT Secondary terminals are never to be kept open circuited.
- ❖ The Pigtail in case of window type CT, must be connected to HT Bus.
- ❖ In Single Phase to Earth PT, ensure that the N-Terminal is securely earthed.
- ❖ The High Voltage test may be conducted at 80% of the test voltage as it is already once performed at full voltage by the manufacturer during routine testing.

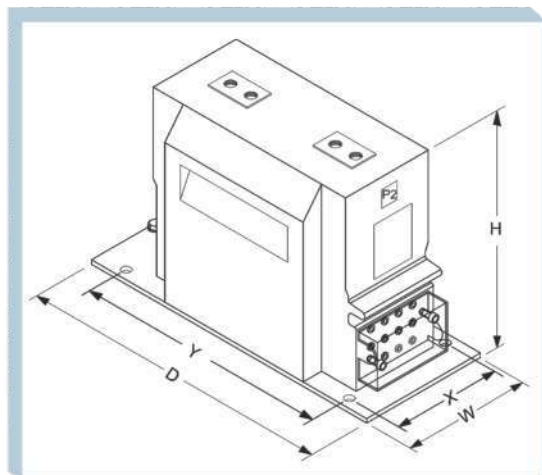
## Selection Criteria

The specifications are of prime importance for compact design and effective Pricing. Following points need to be considered while selection of appropriate Instrument Transformer

- ❖ **Class of Accuracy:** The accuracy of CT/PT is playing major role in pricing; hence it is to be decided in accordance with the desired application and necessity thereof.
- ❖ **Rated Burden:** For digital meters 5VA including lead burden may be sufficient and similarly in the case of numerical relays also. It is advised that the connected burden should not differ more than 10% of Rated burden of Instrument Transformer. When connected burden is substantially low, the ISF for CT shall be much higher, which can result in to damage of Instrument connected. Over specified burden can also lead to inaccurate measurement.
- ❖ **Instrument Security Factor (FS):** It is difficult to design precision CTs when FS is <5 particularly for the low Primary currents. This may lead the designer to use expensive core material causing higher price.
- ❖ **Accuracy Limit Factor (ALF):** The ALF could be as low as permitted by the system to drive the relay of operating system.
- ❖ **Short time Thermal Current Rating:** Ith shall be in accordance with the MVA rating of the feeding Power Transformer. The duration may be decided by the type of tripping device & relay settings employed

# CURRENT TRANSFORMERS

## 12kV Wound Primary Type

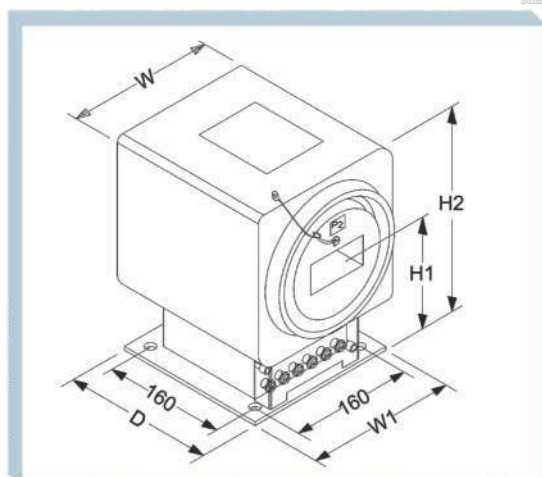


Model	W	D (Max.)	H	X	Y
JCR-11 / A to C	148	380	220	125	270
JCR-11 / D		410			310
JCS-11 / A to C	165	380	250	125	270
JCS-11 / D		410			310
JCM-11 / A to D	180	380	250	170	250
JCT-11 / E, M & F	200	320	250	170	250

### Max. Current Rating :

Rated Primary Current: upto 2000 Amp.  
Ith: upto 40kA, 1/3 Seconds

## 12kV Window (Square) Type

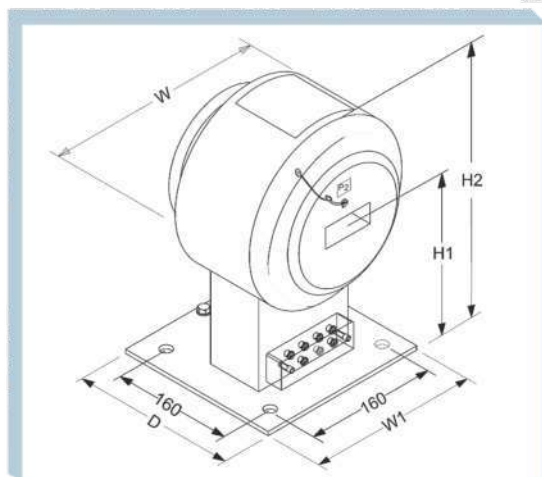


Model	W	W1	D (Max.)	H1	H2
JCWS-11A / 01 to 04	180	180	200	178	268
JCWS-11B / 01 to 05	205	200	200	178	280
JCWS-11C / 01 to 04	225	225	200	180	295

### Max. Current Rating :

Rated Primary Current: upto 5000 Amp.  
Ith: upto 40kA, 1/3 Seconds

## 12kV Window (Ring) Type



Model	W	W1	D (Max.)	H1	H2
JCW-11N / 01 to 04	195	200	200	180	278
JCW-11A / 01 to 04	205	200	200	176	278
JCW-11C / 01 to 04	240	225	200	176	296
JCW-11D / 01 to 03	270	250	200	190	325

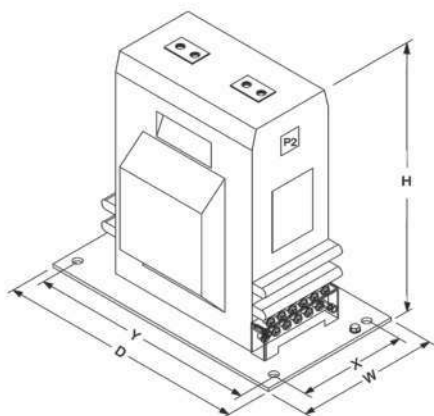
### Max. Current Rating :

Rated Primary Current: upto 6300 Amp.  
Ith: upto 40kA, 1/3 Seconds

All dimensions in mm



## 24/36kV Wound Primary Type



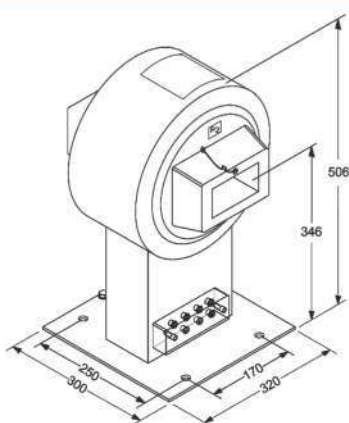
Model	W	D (Max.)	H	X	Y
<b>24kV Wound Type CT</b>					
JCT-22 / Q to S	200	370	280	170	250
<b>36kV Wound Type CT</b>					
JCL-33 / A to C	200	370	330	170	250
*JEL-33 / A to D	225	395	357	170	360

\* CT with Wall Can be offered on request

### Max. Current Rating :

Rated Primary Current: upto 2000 Amp.  
Ith: upto 31.5kA, 1/3 Seconds

## 24/36kV Window (Ring) Type

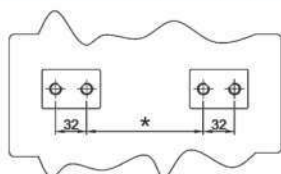


JCW-33

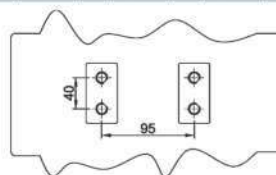
### Max. Current Rating :

Rated Primary Current: upto 4000 Amp.  
Ith: upto 31.5kA, 1/3 Seconds

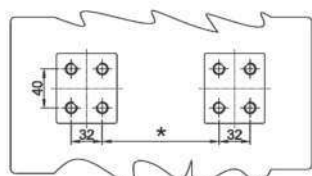
## CT Primary Terminal Arrangement



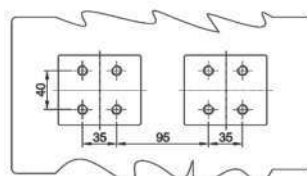
RATED PRIMARY CURRENT UPTO 1250 A  
(Type-01)



RATED PRIMARY CURRENT UPTO 1250 A  
(Type-03)



RATED PRIMARY CURRENT ABOVE 1250 A  
(Type-02)

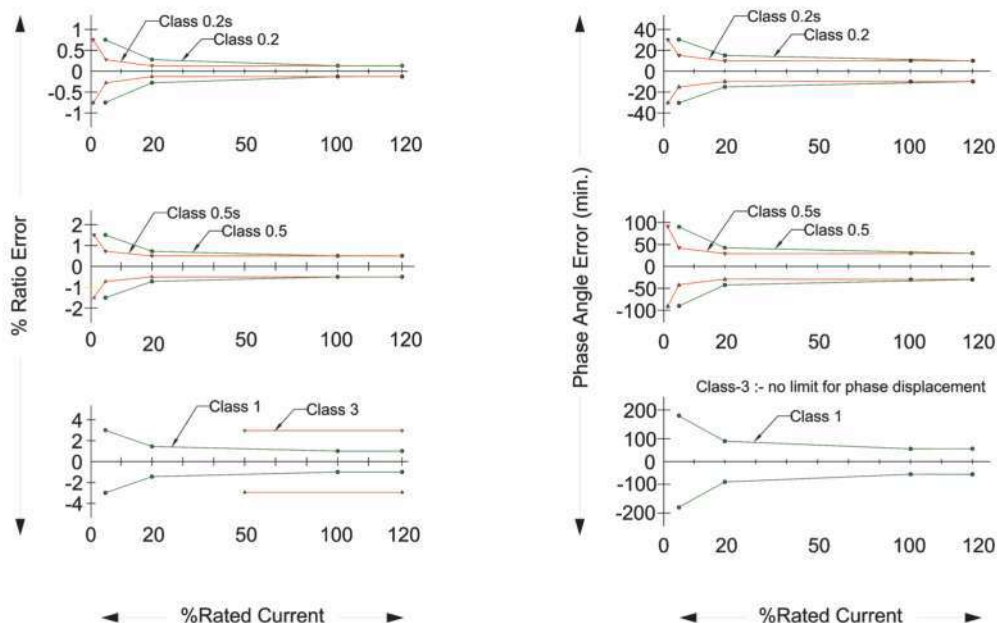


RATED PRIMARY CURRENT ABOVE 1250 A  
(Type-04)

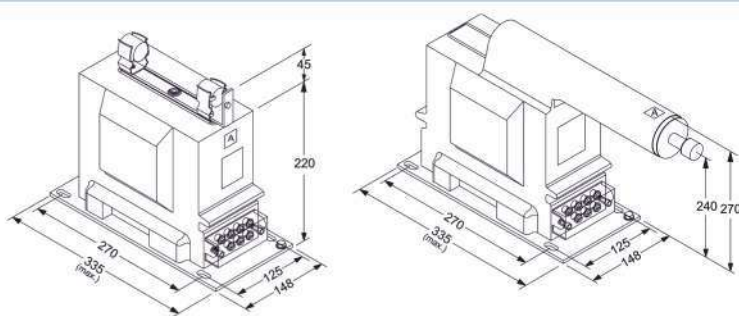
\* Refer GA Drawing

All dimensions in mm

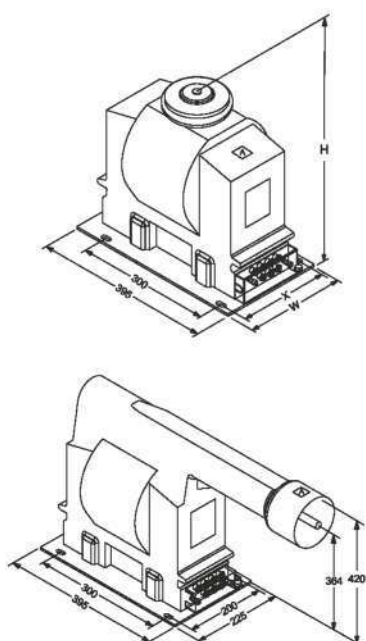
## Permissible Error according to Standards for CT



## POTENTIAL TRANSFORMERS

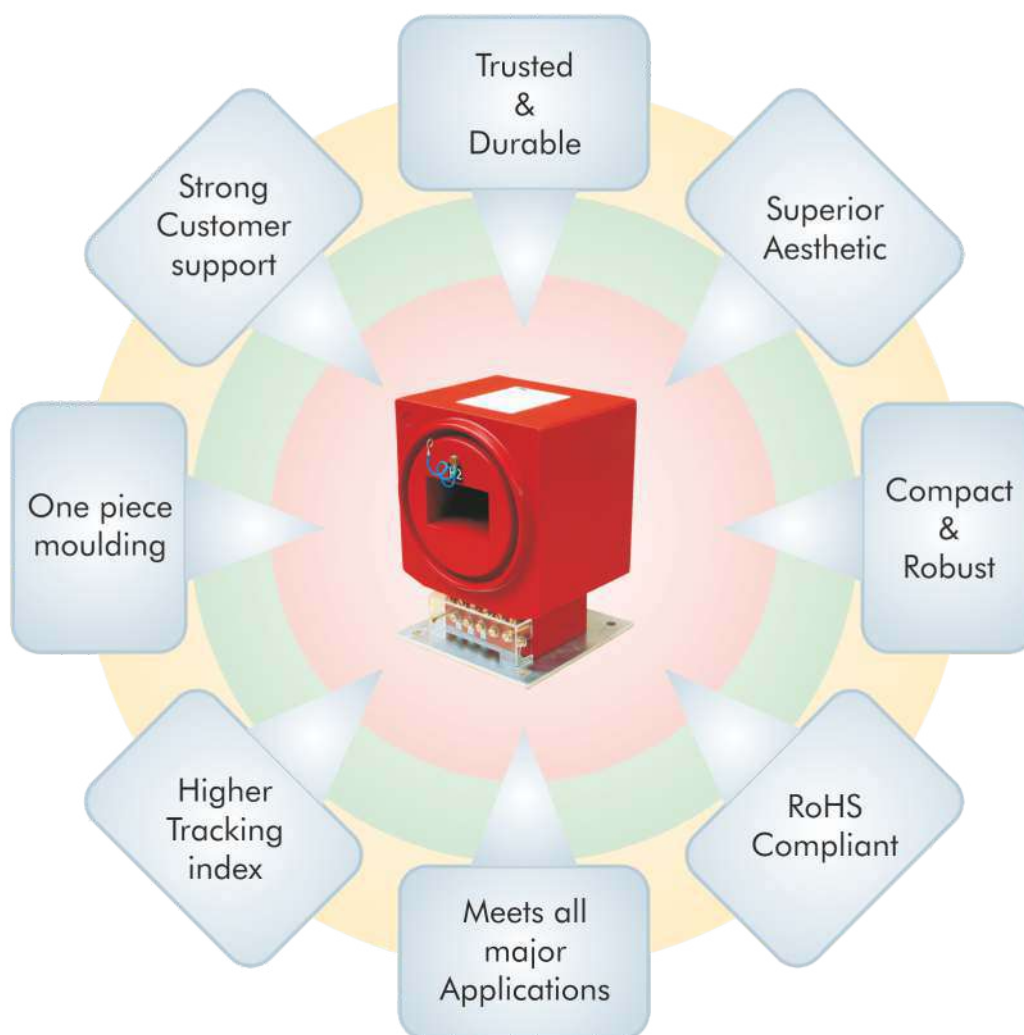


Model	Max. VA / Class of Accuracy
<b>JVR-11</b>	
01	100 / 1.0 + 50 / 3P
02	100 / 0.5 or 200 / 1.0 + 50 / 3P
	50 / 0.5 + 50 / 3P + 30 / 3P
03	30 / 0.2 + 30 / 3P



Model	Max. VA / Class of Accuracy	W	H	X
<b>JVR-22</b>	<b>22kV Type</b>			
01	100 / 0.5 + 50 / 3P	200	300	170
	200 / 1.0 + 50 / 3P			
<b>JVR-33</b>	<b>33kV Type</b>			
01	100 / 1.0 + 50 / 3P	225	350	200
02	100 / 0.5 or 200 / 1.0 + 50 / 3P			
	50 / 0.5 + 50 / 3P + 50 / 3P			
	30 / 0.2 + 30 / 3P			

## Product Distinct Features



## Some of our Customers





### Details required with Enquiry

- ◆ Nominal System Voltage
- ◆ Rated Ratio
- ◆ Number of cores
- ◆ Rated burden of each core
- ◆ Accuracy class of each core
- ◆ Short time thermal Current rating
- ◆ For Differential CT, Ek & Rct or Formula to derive Ek
- ◆ Size of Busbar for Window type CT
- ◆ Limiting dimensions, if any
- ◆ Voltage Factor or method of Neutral grounding system

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Bulletin No. : IT - 12/2022

Technical specifications may change without notice.