



High voltage outdoor current transformers
type IMB 72.5 kV to 800 kV
Robust design and proven performance

High voltage current transformers type IMB

ABB – a global leader

ABB is a global leader in Power and Automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries.

In India, ABB serves customers with the complete range of power and automation technologies. The company has a vast installed base, extensive manufacturing facilities and a countrywide marketing and service presence.

The Power Technologies division offers electric, gas and water utilities as well as industrial and commercial customers a wide range of products, systems and services for power generation, transmission and distribution. ABB's turnkey solution capabilities in the sector range from Electric Balance of Plant (EBoP) for bulk power transmission, turnkey substations and complete electrification to utility automation and distribution systems.

The product offering covers a wide spectrum of technologies across the entire voltage range including indoor and outdoor circuit breakers, air and gas insulated switchgear, disconnectors, capacitor banks, reactive power compensators, power and distribution transformers, instrument transformers, compact secondary substations (CSS) and ring main units (RMU).



Design and construction

The minimum oil current transformers Type IMB are based on a hairpin design and are suitable for operations ranging from 66kV to 765 kV at 50/60 Hz. With over 50 years of experience and 1,50,000 units operating across the globe, these CTs are time tested and proven.

Main features

- The unique 'filling' composition of oil and quartz results in a compact design
- No oil change or filtration required as the expansion chamber / cooler is filled with Nitrogen (N₂) / Metal bellows
- All external iron parts are MS painted for protection against detrimental effects of atmosphere and chemicals
- High seismic withstand capability in both vertical and horizontal directions
- Flexible design to meet special customer requirements such as low currents, high burden, creepage and high altitude
- All gaskets are below oil level ensuring positive oil sealing

Primary winding

The hairpin shaped conductor with graded insulation ensures uniform voltage distribution. The winding is insulated with special paper which has high mechanical and dielectric strength as well as low dielectric losses and good resistance to ageing.

Ratio selection is generally achieved through suitable secondary tapping in the secondary winding.

For ratios in multiples up to and including 1500 A (e.g. 1500-750, 1400-700, 1000-500-250, etc.) selection can also be achieved by a reconnectable primary winding. The primary winding is divided into equal parts, which can be connected in series or parallel by means of external links on the connection head.

The Short Time Current (STC) rating is as per series connection of primary winding (i.e. minimum cross section). With a parallel connection, the STC rating is therefore doubled.

The primary winding consists of a tube open at both ends allowing the oil to circulate. The heat losses are dissipated in the expansion chamber / cooler.

Tan Delta measuring terminal (D3/F terminal)

The outer shield of primary insulation is connected to a bushing in the secondary terminal box and earthed. This is designated as D3/F terminal.

This Tan Delta (D3/F) terminal must be earthed before the CT is charged.

Core

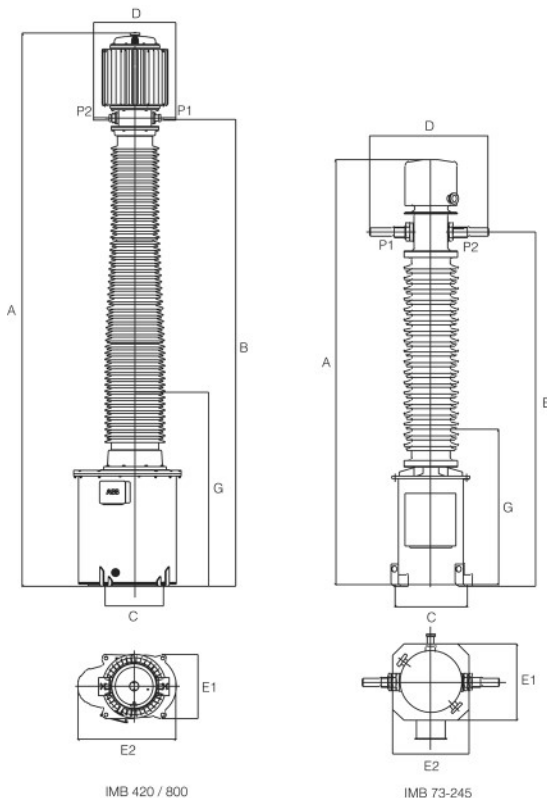
The Current Transformers can normally accommodate up to five cores. However more cores can also be provided on request. High-grade-silicon-steel CRGO is used for manufacture of cores. Stringent accuracy requirements of metering cores are achieved by using special cores made from nickel-iron alloy.

High grade enameled wires are used for winding secondary turns on the cores. They are evenly distributed across the periphery of the core, reducing leakage reactance to a minimum.

Tank & insulator

The lower portion of the CT consists of a aluminium or MS painted tank in which the cores are positioned around the straight limb primary winding. The upper portion of the transformer consists of high-grade brown glazed insulator made from porcelain or polymer. The gaskets are made of oil-proof material.

Important dimensions and shipping data



Terminals

- Primary terminals

420kV terminals are aluminium flats. The primary terminals consist of special 30 mm diameter tinned or silver plated copper rods suitable for copper or aluminium terminal connectors. For higher currents (> 1600 A) two such studs are used.

- Secondary terminals

M8 size, solid brass stud or 6 sq.mm wires. The terminals are generally terminated on series terminals suitable for 10 sq.mm wires. Cable glands are provided on request. Secondary winding should never be open circuited when CT is in operation.

- Earthing terminals

They are provided on the lifting lugs, suitable for earthing wires or strips.

Quality Assurance

The IMB current transformers are designed to comply with IEC: 60044-1 and IS: 2705. CTs complying with ANSI/IEEE Std C57.13 or other Standards can also be provided on request.

ABB's state-of-the-art Vadodara facility is ISO 9001 certified for quality systems, which covers all aspects of production and testing to ensure the highest quality standards. The facility is also EHS certified for Environment and Occupational Health and Safety Management Systems.

IMB	A	B	C	D	E1	E2	G
73	2280	1790	460	505	520	520	855
145	2850	2360	460	505	520	520	1055
245	4020	3370	600	590	670	670	1300
420	5660	4790	600	880	670	1105	2250
800	9270	7090	600	765	670	1105	4000

Dimensions in mm.

Flash over and creepage distances

IMB	Voltage Rating Um(kV)	Flash-over Distance (mm) 50	Nominal Minimum Creepage Distance (mm)
73	72.5	750	1815
145	145	1375	3625
245	245	2170	6125
420	420	3220	10500
800	800	5520	20000

Data and illustration are without engagement. We reserve the right to make changes in the course of technical development.