



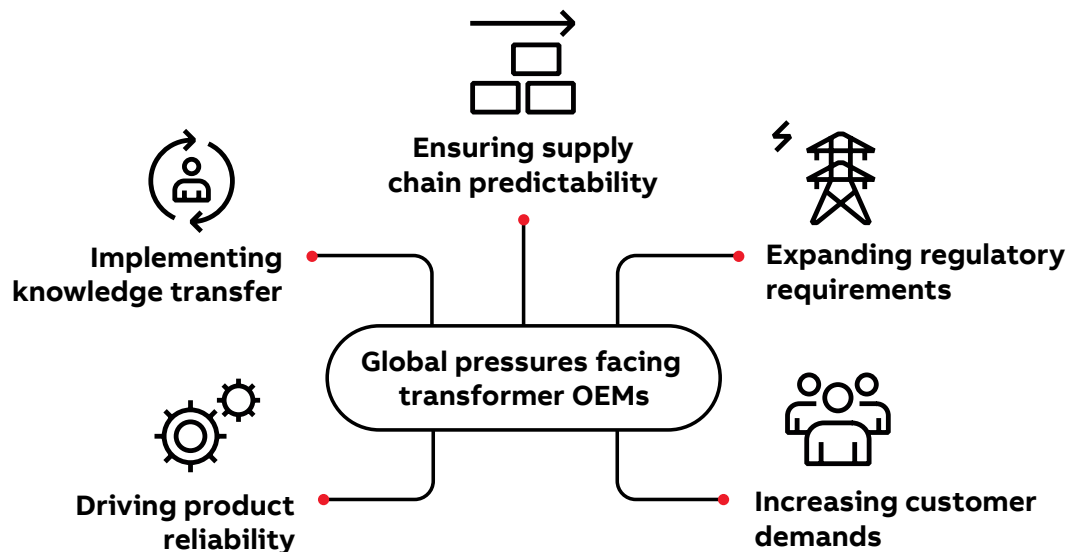
Transformer insulation & components

The world's broadest and most
reliable portfolio of transformer
components for OEMs

As a global leader in transformer solutions, we offer a full range of insulation and components for your transformer factories – all from one supplier. Delivering safety, reliability and faster lead times for you and your customers.

The changing world of transformer OEMs

From shifting demographics to aging assets to climate change, transformer OEMs are facing global pressures to improve equipment safety, power reliability and efficiency—while minimizing environmental impact.



Implementing knowledge transfer

Vast numbers of employees with transformer experience are retiring, taking their decades of experience and expertise with them. Making sure others are cross trained and new employees have access to their knowledge is critical.

Ensuring supply chain predictability

Supply chains in the energy sector are complex and provide many opportunities for failure. The more predictable and reliable your supply chain, the better the decisions you make. Better decisions lead to better margins.

Expanding regulatory requirements

The regulatory environment is more complex than ever before, and getting infrastructure projects approved is harder than ever. Sustaining growth in the face of increasing regulatory oversight is a critical challenge.

Increasing customer demands

Commercial and industrial customers are increasingly demanding utility services beyond simple kilowatts, seeking energy that is greener and more reliable. The trend towards decarbonization is adding even greater pressure.

Driving product reliability

Unscheduled downtime for manufacturers costs millions, results in loss of customer trust and is typically the largest source of lost production time. Product reliability is critical to achieving optimal performance, safely.



A leading OEM partner for over 100 years

As both the world's largest dedicated transformer manufacturer and service organization, ABB offers you the broadest range of solutions for power and distribution transformers. Our entire range of products is the result of our own research, development and manufacturing, which makes us unique in the industry.

Scope

ABB manufactures insulation and components for major transformer OEMs around the world. No other transformer supplier can match the scope and coverage of our knowledge base and expertise.

Lead times

We are continually assessing your needs and market trends to develop industry-leading transformer technology.

Portfolio

Offering the broadest range of products for power and distribution transformers, ABB is a one-stop shop to support you across the complete transformer value chain.

Reliability

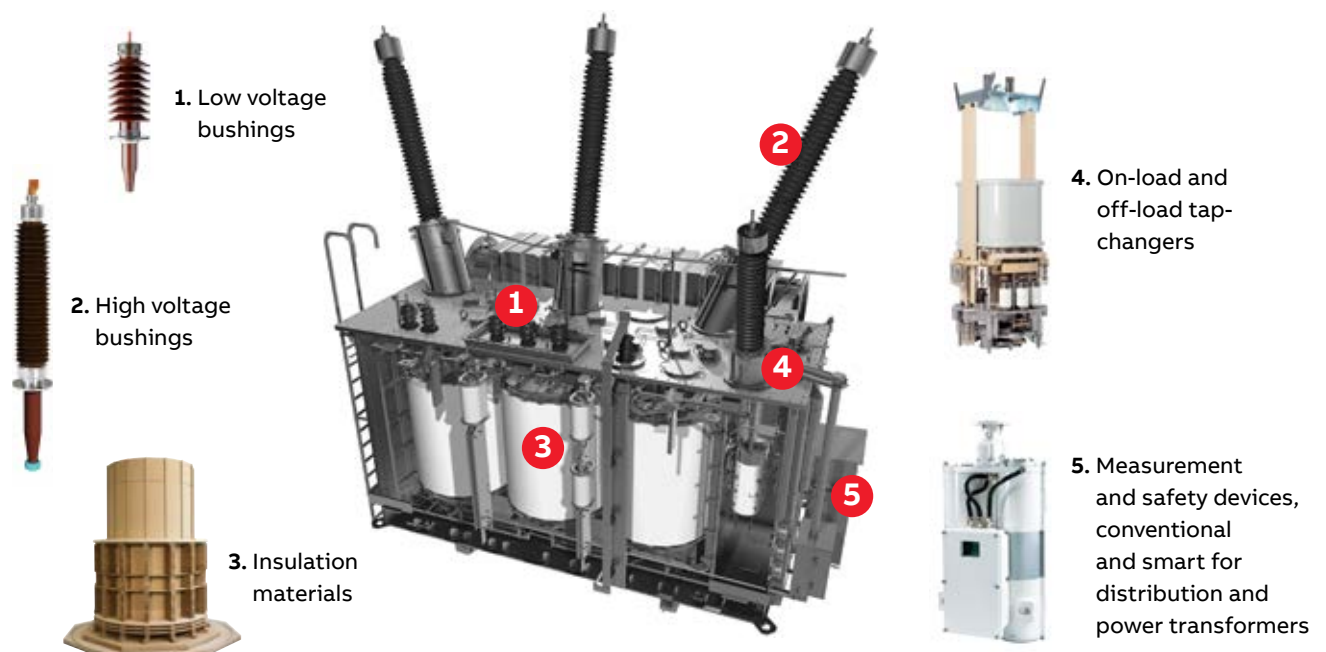
ABB is the world's largest dedicated transformer components and support organization, offering a one-supplier solution to your transformer needs.

Predictive solutions

ABB's innovative transformer eDevices, sensors and accessories enable better decision making.

Footprint

Our extensive manufacturing capabilities, coupled with a comprehensive knowledge base, enables us to meet regional / local standards and specifications.





A complete transformer portfolio for OEMs

Insulation



Electrical insulation is a vital part of transformers, helping them withstand the high temperatures that occur during the transformer's operating life. The lifetime of a transformer depends on the reliability of the insulation used.

ABB pays close attention to the systems and processes used in manufacturing transformer insulation, and continues to improve product quality and reliability by investing in modern equipment and experienced people.



ABB offers the broadest range of products and services to OEMs for power and distribution transformers. From replacements to upgrades, and from mechanical to digital, we have been the supplier of choice providing quality insulation materials for over 100 years by meeting the diverse needs of an evolving industry.

For distribution and power transformers, whether it be liquid-filled, dry-type or traction, we offer:

- Pressboard and specialty paper manufacturing
- Winding and active part insulation kits
- Fiber composite laminates and components
- Flexible laminates
- Polymeric insulators



A complete transformer portfolio for OEMs

Tap-changers and motor-drives

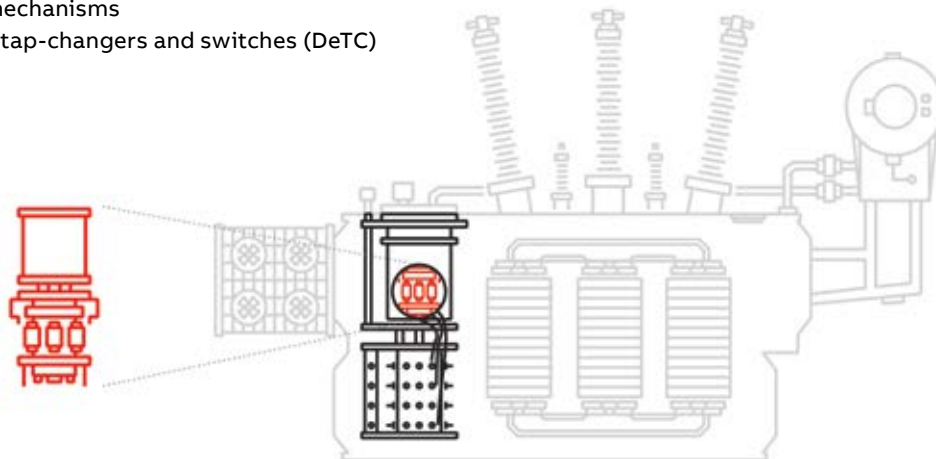


Tap-changers are used to change the turn ratio between windings in a transformer. This ratio determines the voltage ratio between the windings and is essential for the stabilization of network voltage under variable load conditions. This adjustment may be made by an on-load tap-changer, or by a de-energized tap-changer, or by the selection of bolted link positions.

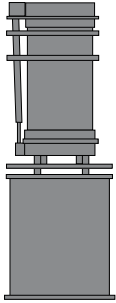
ABB offers a comprehensive portfolio of on-load tap-changers (both the conventional and vacuum type), for high-voltage and low-voltage regulation, in in-tank and on-tank solutions. Our offering includes a wide range of de-energized tap-changers.

Our tap-changers are paired with robust, dependable motor drives that are configurable to meet a wide range of customer specifications. The main objective of an electric motor-drive unit is to drive the connected on-load tap-changer or large de-energized tap-changers to a higher or lower tap of a transformer.

- Conventional on-load tap-changers (OLTC)
- Vacuum on-load tap-changers (OLTC)
- Motor-drive mechanisms
- De-energized tap-changers and switches (DeTC)



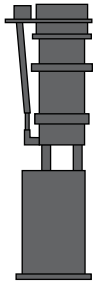
OLTC portfolio overview – Conventional



	← On-tank		In-tank →								
Product name	UZF	UZE	UBB	UCG short	UCG/C	UCG/III	UCG/F	UCL/III	UCL/F	UCD/III	UCC/IV
Max voltage [kV] in delta connection*	145	145	72,5	245	245	245	245	300	300	245	245
Max BIL [kV]	650	650	350	1050	1050	1050	1050	1175	1175	1050	1050
Max current [A]**	600	600	500	300	600	600	925	925	925	1000	1600
Max positions	33	33	27	35	35	35	35	35	35	35	35

* For Δ-connection. Y-connections is restricted by insulation of neutral point to ground. ** Maximum current in Y-connection.

OLTC portfolio overview – Vacuum



	← Reactance		Resistive →						
	← On-tank		In-tank →						
Product name	VRLTC	VUBB	VUCG short	VUCG/C	VUCG/III	VUCG/F	VUCL/III	VUCL/F	
Max voltage [kV] in delta connection*	34,5	72,5	245	245	245	245	300	300	
Max BIL [kV]	200	380	1050	1050	1050	1050	1175	1175	
Max current [A]**	2000	600	600	600	800	800	1000	1300	
Max positions	33	19	35	35	35	35	35	35	

* For Δ-connection. Y-connections is restricted by insulation of neutral point to ground. ** Maximum current in Y-connection.

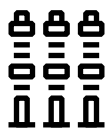
DeTC portfolio overview

	Rotary				Linear					
	IEC		IEEE		IEC			IEEE		
Product name	KDV	DPC	DT/DV	DTW	COT	KD	MT	AT	DTU	DTL
Max voltage [kV] in delta connection*	24	300	24	300	36	72,5	72,5	245	145	145
Max BIL [kV]	150	1050	150	1050	200	350	350	1050	650	650
Max current [A]	300	3200	150	4000	63	1800	2000	650	1500	2000
Max positions	6	5	6	6	7	11	6	9	7	7

* For Δ-connection. Y-connections is restricted by insulation of neutral point to ground.

A complete transformer portfolio for OEMs


Bushings



Bushings are critical components in all electrical networks, as their chief role is to bring current at high voltage through a grounded barrier. ABB offers a broad range of bushings for transformers, reactors, switchgear, and traction and wall applications. Our portfolio, tailored to individual requirements, ensures users can rely on the highest possible safety and reliability.


- Voltage range from 1 kV to 1,200 kV
- Comply with all national standards, including IEC, IEEE, ANSI and GOST
- AC and DC bushings
- Ultra-high-voltage bushings
- Dry-type bushings
- After sales and customer support

Oil Impregnated Paper (OIP) – Power transformer outdoor bushings



Product name	GOH	GOB (CN TOB)	GOE	GOF	GOM (CN-TOM)	GOEK	Type T	Type O Plus C (II)
Rated voltage [kV]	36	52-300 (72.5 - 170)	52-1200	125-600	245 (252)	245-800	25-46	15-550
Max. current [A]	25'000	1250 (2000)	5'000	4'000	1'600	5'000	21'500	6'000
Application	Transformer-high current (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/SF ₆)	Transformer-high current (oil/air)	Transformer (oil/air)
Standard	IEC	IEC	IEC	IEC	IEC	IEC	ANSI/IEEE	ANSI/IEEE

DRY - Resin Impregnated Paper (RIP)/Resin Impregnated Synthetics (RIS) – Power transformer outdoor



Product name	RTKF (HiRIP)	RTKF (AirRIP)	GSA-OA (directly molded)	GSB	BRIT/BRIT-S/ BRIT-R	EasyDRY (directly molded)	O Plus Dry (directly molded)	SeismicRIP
Rated voltage [kV]	24-36	24-550	52-170	245-800	110-220	24-170	25-230	69-550
Max. current [A]	40'000	5'000	2'000	2'500	2'00	2'500	3'000	2'500
Application	Transformer-high current (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)
Standard	IEC	IEC	IEC	IEC	GOST	IEC	ANSI/IEEE	ANSI/IEEE

HVDC transformer and wall bushings



Product name	GGF	GSC	GSD	GGFL	GSCL
Rated DC voltage [kV]	200-1100	200-450	200-600	150-1100	320
Max. current [A]	4'500	2'000	2'000-5'800	6'250	2'500
Technology	OIP/SF ₆	RIP/Foam	RIP/SF ₆	OIP/SF ₆	RIP/Foam
Application	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	Wall (air/air)	Wall (air/air)

DRY – Non condenser (bulk) distribution transformer bushings



High-resolution images to come

Product name	Cast resin bulk	Porcelain bulk	CRS	Type RJ & LCRJ	Type A
Rated voltage [kV]	1-34	1 - 52	12 - 72.5	1 – 34.5	1 – 34.5
Max. current [A]	5'400	6'500/3'150	6'300	23'000	18'000
Application	Transformer/Switchgear (oil/air) + (oil/gas)	Transformer (oil/air)	Transformer (oil/air)	Transformer (oil/air)	RIP/Foam
Standard	IEC	IEC	IEC/ANSI IEEE	ANSI/IEEE	ANSI IEEE

DRY - Resin Impregnated Paper (RIP) – Other power transformer/wall/switchgear/traction bushings



High-resolution images to come

Product name	RTKK (OilRIP)	GSA-OO	GSBK	RTKG (GaRIP)	RMI/RMFF	GSA-AA	BRIL/BRIL-S	RAKF	RMI/RMII	
Rated voltage [kV]	72.5 - 550	52-245	245-550	36-550	24-300	52-123	110	245-550	35-110	12-36
Max. current [A]	4'000	2'500	2'500	4'000	5'000	4'000	2'000	4'000	2'000	3'000
Application	Transformer (oil/oil)	Transformer (oil/oil)	Transformer (oil/oil) + (oil/SF ₆)	Transformer (oil/SF ₆)	Wall (air/air)	Wall (air/air)	Wall (air/air)	Switchgear (SF ₆ /air)	Switchgear (oil/air)	Traction wall (air/air) (oil/air)
Standard	IEC	IEC	IEC	IEC	IEC	IEC	GOST	IEC	GOST	IEC

A complete portfolio for OEMs

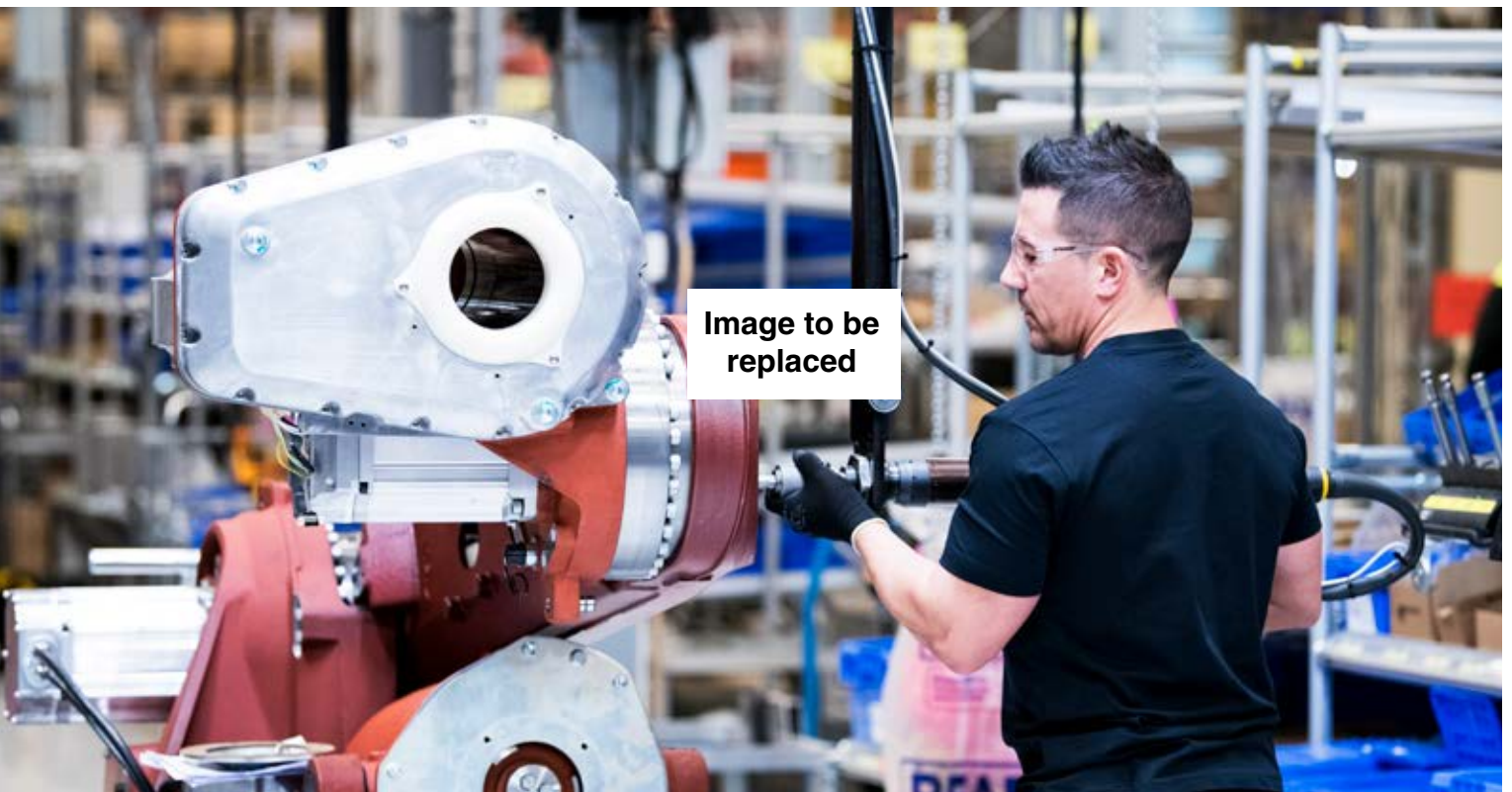
Measurement and safety devices for all types of transformers



Transformers need to be protected to limit the risk of damage caused by abnormally high current and overvoltage. To secure reliable and safe service conditions, ABB provides a comprehensive range of measurement and safety devices.

Our offering includes the new generation of smart devices and cost-effective complete solutions that monitor transformer health and improve safety, reliability and efficiency, while minimizing environmental impact.

Our local and global after-sales teams and knowledgeable customer support network offers expert support to help select the right device for your application. From replacements to upgrades and mechanical to digital devices, we offer the most complete portfolio in the industry.



Conventional and smart offerings



Dehydrating breathers

- Absorbs moisture
- Offered as conventional or digital eDevice (eSBD)



Liquid level indicators

- Provides clear indication of the oil level
- Offered as conventional or digital eDevice (eOLI)



Pressure & flow devices

- Pressure monitoring
- Offered as conventional or digital eDevice (ePRD)



Temperature indicators

- Oil and winding temperature monitoring
- Offered as conventional or digital eDevice (eOTI)



Monitoring systems

- Offered as digital



Mechanical components & valves

- Offered as conventional



Connectors

- Offered as conventional



Fuses & fuse holders

- Offered as conventional



Integrated safety device

- Offered as conventional

Spare parts

- Offered as conventional



Smart devices

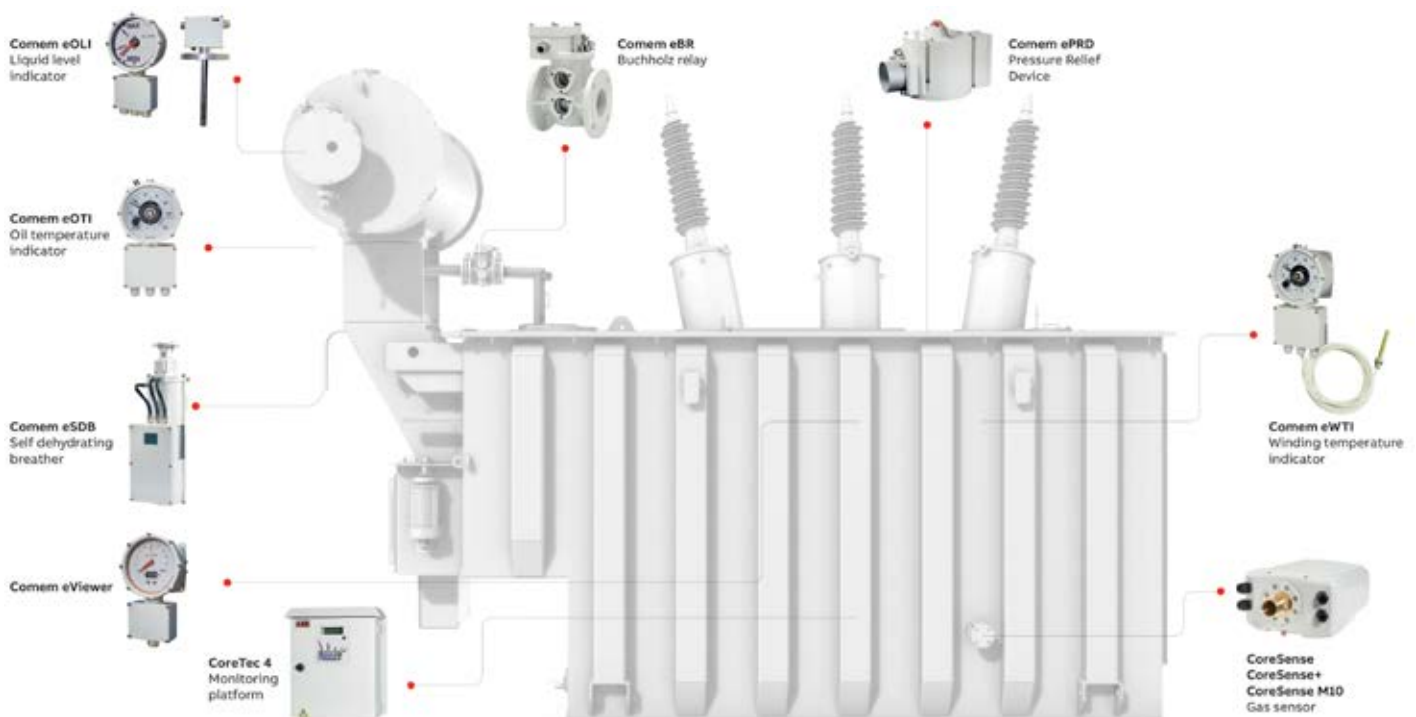
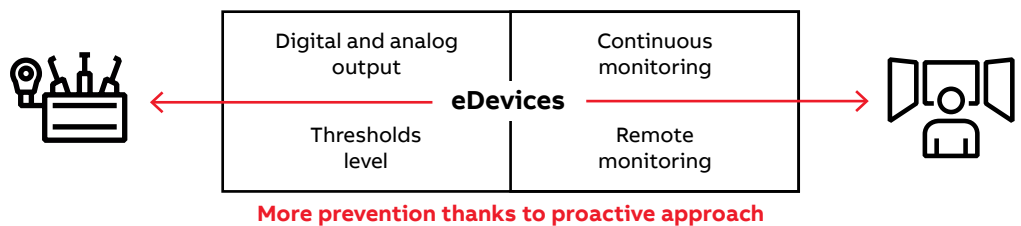
Benefits of monitoring and a digital ecosystem

Digitalization is helping enterprises make better and faster decisions through enhanced asset performance visibility. As installed transformers continue to age and as new transformers possess added complexities, the need for deeper transformer insight for improved efficiency continues to grow.

ABB's eDevices represent a comprehensive monitoring and fleet analytics solution that enables continuous monitoring of a transformer's parameters: From a specific application to an

entire predictive monitoring solution, ABB helps the entire ecosystem improve transformer resource efficiency. Our offerings, each coupled with specialized ABB training, include:

- Air humidity
- Gas accumulation
- Liquid level
- Winding and liquid temperature
- Internal pressure
- H₂ and moisture gas detector



Mechanical components and valves for distribution transformers

ABB designs and produces a comprehensive range of mechanical components and valves for distribution and power transformers. Our broad portfolio includes various sizes of transformer wheels, oil draining devices, connection pipes, cable glands and valves.

The combination of high quality and the most comprehensive offering on the market makes ABB your partner of choice.

Our offering



Transformer wheels



Valves



Cable glands



Generic mechanical parts



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For more information, please contact
your local ABB representative.

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