

Product portfolio overview

MV gas insulated switchgear and ring main units



ABB's medium voltage gas insulated switchgear (GIS) has a long record of providing the high ratings, compact dimensions, low maintenance, high reliability, and increased safety that modern customers demand.

What is GIS?

Gas insulated switchgear is a compact switchgear system consisting of high voltage components such as circuit-breakers, disconnectors, load interrupters, and bus bars – all enclosed in a metal tank. The tank is sealed for life and filled with sulfur hexafluoride (SF₆) that operates as an insulating medium. The exceptional insulating capabilities of SF₆ allow GIS units to be extremely compact, and the sealing of the tank means the medium voltage parts are maintenance free for the life of the product.

ABB offers two GIS solutions: the ZX line rated up to 40 kA/5000 A and the SafePlus line up to 25 kA/600 A (ring main units). Both solutions offer a minimum 30-year lifespan with gas leakage rates of less than 0.1% per year.

Digital GIS – the smarter solution

ABB's Digital solutions make our proven GIS smarter, safer, and more efficient by using smart automation and control solutions that enable you to efficiently act and quickly react. Digital GIS takes full advantage of new technologies such as temperature, environment humidity and gas pressure sensors, online condition monitoring, and diagnostics to provide a new way of working for the electric system.

Help increase reliability, lower operation and maintenance costs, and extend the life cycle of your switchgear with ABB's Digital GIS solutions.

Key features include

- Ratings up to 40.5 kV/5000 A/40 kA
- Extremely compact design! Up to 70% footprint reduction with GIS compared to air insulated switchgear (AIS) at 38 kV
- High availability due to independence from ambient conditions, including in adverse environments and high-altitude installations
- High safety with touch-proof dead front design, no access to MV parts, and mechanical interlocks
- Maximum availability with low maintenance requirements due to sealed gas tanks
- Tanks are sealed and filled at the factory – **no gas work is required on site during installation or operation**
- Smaller switchgear means smaller electrical rooms, making GIS very cost competitive above 27 kV

Product category

SafePlus 36		Characteristic	Unit	Value	Features	Standards
		Max voltage	kV	38	<ul style="list-style-type: none"> • Compact solutions – each panel only 16.5" wide/76" high • Compact or modular solution • Load break switch, vacuum circuit breaker, or cable riser • External cone bushing connections and all operations from front of switchgear • Optional 19.5" base frame for rear or top cable entry • Rear viewports or external cameras for visual verification of the two-position disconnect switch • Available with current and voltage sensor technology • IP54 outdoor enclosure up to 4 functional units 	IEEE C37.20.3 C37.20.9 C37.58 C37.54
		Normal busbar current	A	600		
		Short circuit breaking current	kA	25		
		Basic Insulation Level (BIL)	kV	150		
		Connector types		IEC Type C IEEE Fig. 13		
		Nationally Recognized Testing Laboratory (NRTL) certification		UL up to 20 kA		
SafePlus 12/24		Characteristic	Unit	Value	Features	Standards
		Max voltage	kV	12/24	<ul style="list-style-type: none"> • Compact solutions – each panel only 13.8" wide/52.6" high • Compact or modular solution • Ten separate function types including cable switches, circuit breakers, sectionalizers, and various metering solutions • Optional base frames up to 17.7" for rear or top cable entry • Available with current and voltage sensor technology • IP54 outdoor enclosure up to 5 functional units 	IEC 62271-1 62271-100 62271-102 62271-103 62271-105 62271-200
		Normal busbar current	A	630 1250		
		Short circuit breaking current	kA	25/20		
		Basic Insulation Level (BIL)	kV	95/125		
		Connector types		IEC Type C		
		Nationally Recognized Testing Laboratory (NRTL) certification		N/A		
SafePlus AirPlus 12/24		Characteristic	Unit	Value (IEC)	Features	Standards
		Max voltage	kV	12/24	<ul style="list-style-type: none"> • Compact solutions – each panel only 13.8" wide/52.6" high • SF6-free: AirPlus insulation gas with a Global Warming Potential (GWP) < 1 • True GIS design: Protected from ambient conditions by sealed gas compartment • Easy replacement: Same compact dimensions as the proven SafePlus with SF6 insulation • Load break switch, vacuum circuit breaker, or cable riser • Available with sensor technology and digital communication options • Currently available at 50 Hz 	IEC 62271-1 62271-100 62271-102 62271-103 62271-105 62271-200
		Normal busbar current	A	630		
		Short circuit breaking current	kA	20/16		
		Basic Insulation Level (BIL)	kV	75/125		
		Connector types		IEC Type C		
		Nationally Recognized Testing Laboratory (NRTL) certification		N/A		

ZX2	Characteristic	Unit	Value	Features	Standards
	Max voltage	kV	38.5	<ul style="list-style-type: none"> Vacuum interrupter with 30,000 operations Electrically operated 3-position disconnect Pressure sensor with self-control functionality 	IEEE C37.122.2
	Normal busbar current	A	5000/3150 SBB/DBB ¹	<ul style="list-style-type: none"> Pressure relief duct extends up to an opening in the outside wall 	IEC 62271-1 62271-100 62271-102 62271-103 62271-200
	Short circuit breaking current	kA	40	<ul style="list-style-type: none"> Innovative busbar system for easy installation with no special tools CTs in air are easy to install or replace 	CSA 22.2 No. 31
	Basic Insulation Level (BIL)	kV	Up to 200	<ul style="list-style-type: none"> BIL and switchgear ratings of panels up to 70 kV/170 kV are maintained at 0,0 bar overpressure 	
	Connector types		Inner cone or outer cone	<ul style="list-style-type: none"> Viewports are independent of cameras Breaker replacement is possible 	
	Nationally Recognized Testing Laboratory (NRTL) certification		ETL	<ul style="list-style-type: none"> Cable compartment can accommodate optional zero sequence CTs Optional top entry (single busbar, 1200 A, 170 kV BIL, 31.5 in.) 	

ZX0.2	Characteristic	Unit	Value	Features	Standards
	Max voltage	kV	38.5	<ul style="list-style-type: none"> Vacuum interrupter with 30,000 operations Electrically operated 3-position disconnect Pressure sensor with self-control functionality 	IEC 62271-1 62271-100 62271-102 62271-103 62271-105 62271-200
	Normal busbar current	A	2500	<ul style="list-style-type: none"> 3-phase encapsulated arc-resistant bays 	
	Short circuit breaking current	kA	31.5	<ul style="list-style-type: none"> Wall mounted design with mechanical operating area 	
	Basic Insulation Level (BIL)	kV	Up to 170	<ul style="list-style-type: none"> Solid insulated bus bars: one gas compartment per panel Motorized operating mechanisms for switching devices easily accessible inside low voltage compartment 	
	Connector types		IEC Type C	<ul style="list-style-type: none"> View ports for visual verification 	
	Nationally Recognized Testing Laboratory (NRTL) certification		UL with field certification available		

ZX2.2	Characteristic	Unit	Value	Features	Standards
	Max voltage	kV	38.5	<ul style="list-style-type: none"> Vacuum interrupter with 30,000 operations Electrically operated 3-position disconnect Pressure sensor with self-control functionality 	IEEE C37.122.2
	Normal busbar current	A	2500 SBB ¹ and DBB ¹	<ul style="list-style-type: none"> Pressure relief duct extends up to an opening in the outside wall 	IEC 62271-1 62271-100 62271-102 62271-103 62271-200
	Short circuit breaking current	kA	40	<ul style="list-style-type: none"> Innovative busbar system for easy installation with no special tools 	
	Basic Insulation Level (BIL)	kV	Up to 200	<ul style="list-style-type: none"> Feeder panels include three-position disconnects on both sides of the circuit breaker and an additional cable grounding switch 	
	Connector types		Inner cone	<ul style="list-style-type: none"> View ports for visual verification 	
	Nationally Recognized Testing Laboratory (NRTL) certification		UL with field certification available	<ul style="list-style-type: none"> Especially designed to meet the requirements of the North American market 	

¹ SBB = Single busbar; DBB = Double busbar

Construction characteristics*

GIS Type	Max voltage (kV)	BB current (A)	Short circuit current (kA)	BIL (kV)	Dimensions (in) W x D x H
SafePlus 36	38	600	25	170	16.5 x 35.4 x 76
SafePlus 12/24	24	600 / 1200	20	125	13.8 x 29.57 x 52.6
SafePlus 12/24	12	600 / 1200	25	95	13.8 x 29.57 x 52.6
SafePlus AirPlus	24	600	16	125	13.8 x 29.57 x 52.6
SafePlus AirPlus	12	600	20	75	13.43 x 29.57 x 52.6
ZX2	15/27/38	1200	40	90/125/150	23.62 x 73.23 x 90.55
ZX2	15/27/38	2000	40	90/125/200	31.50 x 73.23 x 90.55
ZX2	15/27/38	3000	40	90/125/200	33.07 x 73.23 x 90.55
ZX0.2	15/27/38	1200	31.5	90/125/170	23.6 x 52.36 x 94.5
ZX0.2	15/27/38	2500	31.5	90/125/170	35.4 x 52.36 x 94.5
ZX2.2	15/27/38	>1200 ≤2500	40	90/125/200	31.5 x 81 x 91
ZX2.2	15/27/38	≤1200	40	90/125/170	23.6 x 81 x 91

*Dimensions are per panel based on standard configurations. Some solutions may require panels of varying sizes.