Grid Solutions

F35-170 kV

Gas-Insulated Substations 170 kV, 50 kA, 4000 A

Grid Solutions at GE Vernova company, has more than 50 years of experience in the design, material selection, development, engineering, manufacturing and servicing of gas-insulated substations (GIS).

The F35 GIS meet the challenges of networks up to 170 kV for all applications: power generation, transmission, distribution, tertiary and heavy industry.

Highest Availability

- Best experience and reliability data
- Current transformers outside SF_6
- Drives and accessories within easy reach
- Pure-spring circuit breaker drives

Shortest Site Works

- Complete bays assembled, wired, tested and shipped
- Isolating device for voltage transformer / surge arrester

New Dual Gas generation under Development

The F35-170 Dual Gas GIS is expected to be available in 2026 with SF_6 or g^3 gas as insulating and switching medium. The SF_6-free F35g-170 kV GIS, using g^3 instead of SF_6, will have a significantly reduced carbon footprint compared to the present F35-170 kV GIS. The gas contribution to global warming is planned to be reduced by 99% using Grid Solutions' g^3 gas mixture instead of SF_6.

The F35-170 Dual Gas GIS is being designed to reach the same ratings as the current product with multiple design improvements, including the reduction of gas, new sealing system, easier maintenance and on-site operations.

Lowest Cost of Land and Civil Works

- The most compact 170 kV GIS: bay footprint 30% below market average

Smart Grid Features

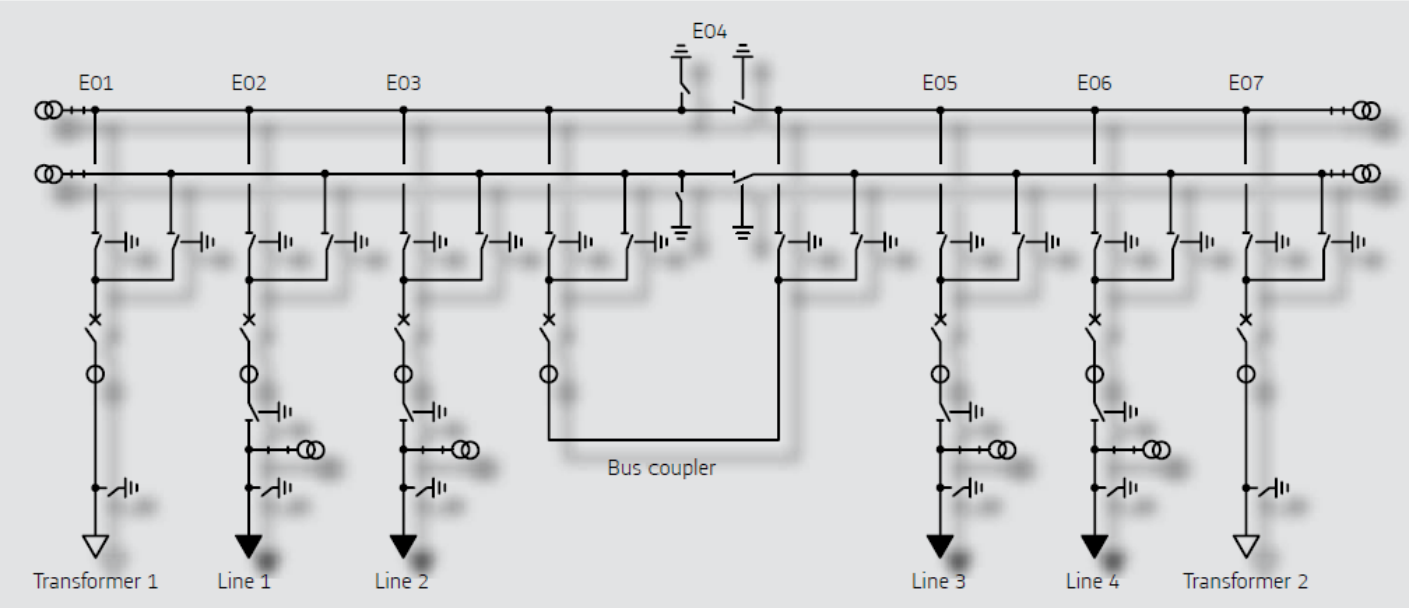
- Full-digital monitoring, control and protection

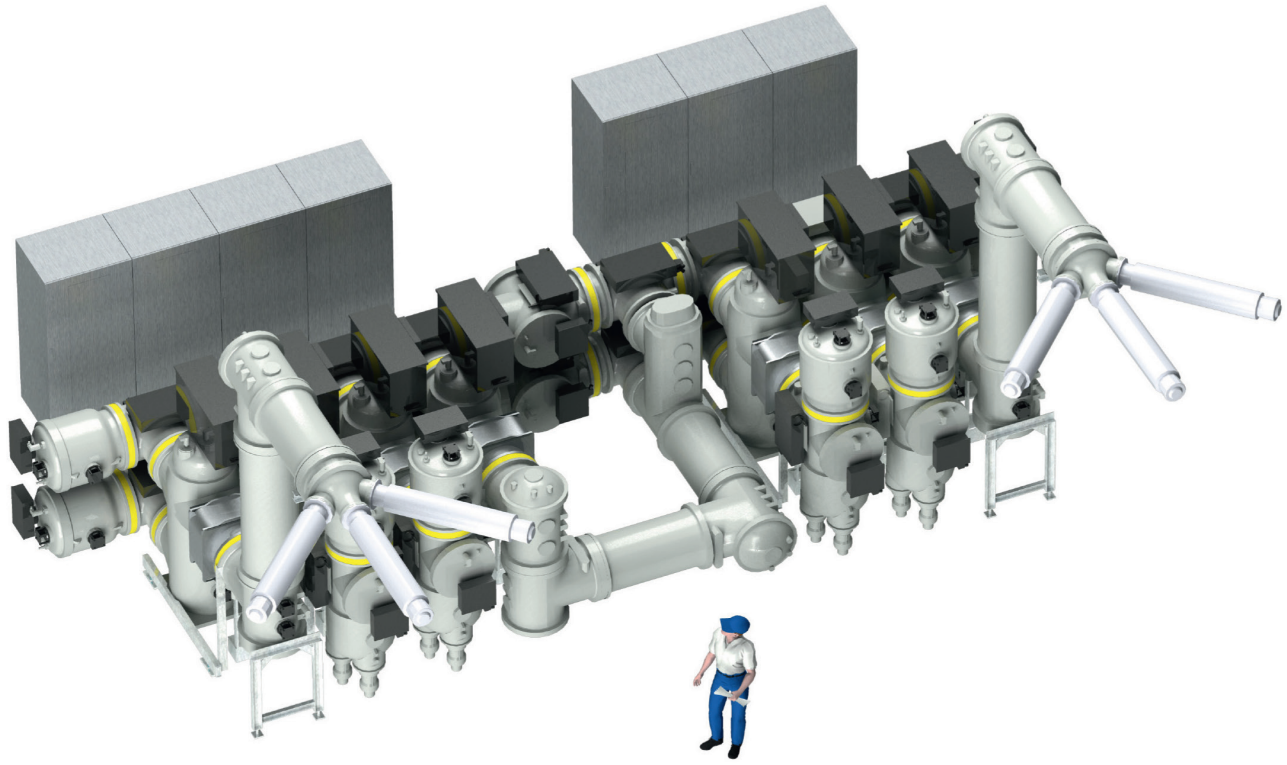
Customer Benefits

- Maximum safety
- Compact but accessible
- Field-proven reliability
- First-class availability
- Low total cost of ownership
- Smart Grid ready
- Low global-warming impact

GE VERNOVA

F35 - 170 kV, 50 kA, 4 000 A - Double busbar diagram

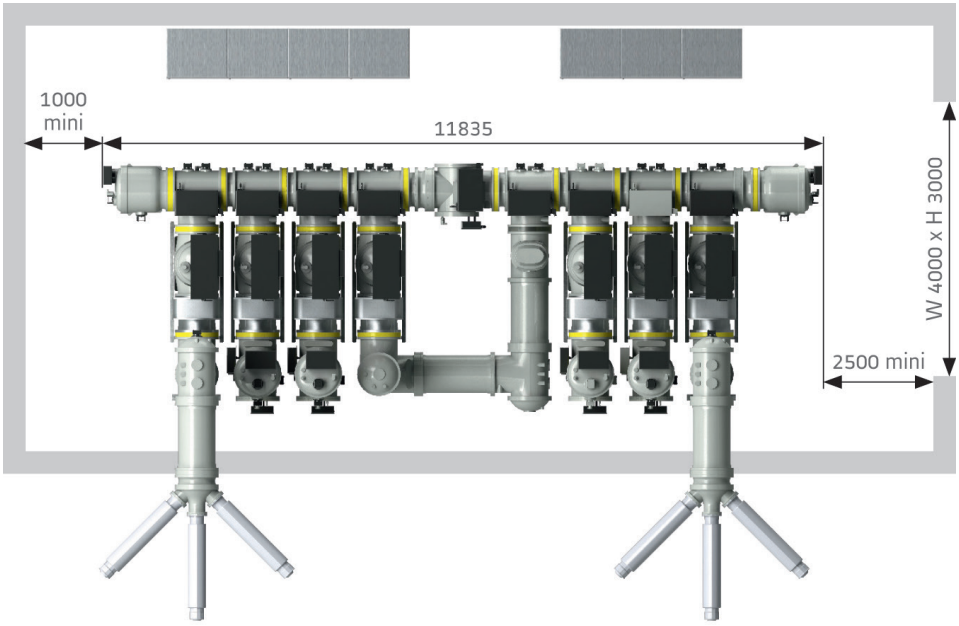


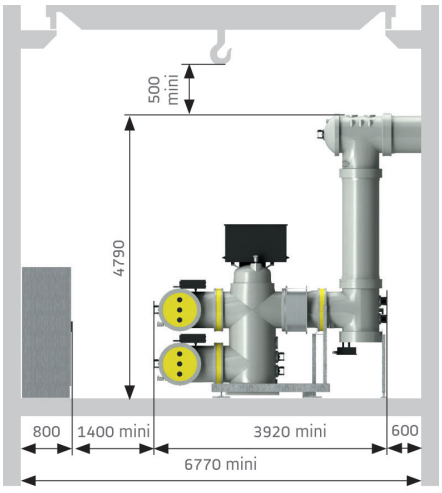


Bay width: 1,000 mm

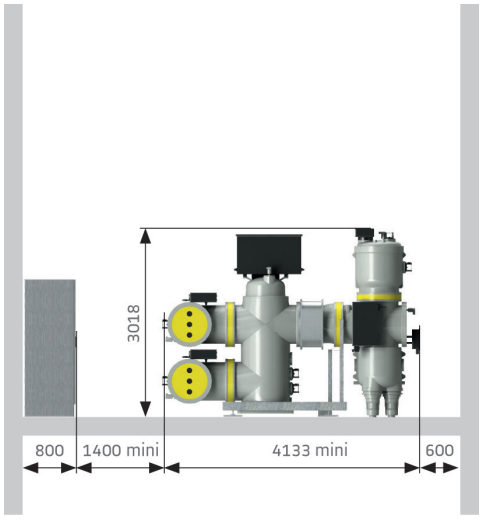
Also available:

- Other single-line diagrams
- Standalone control cubicles
- Specific layouts

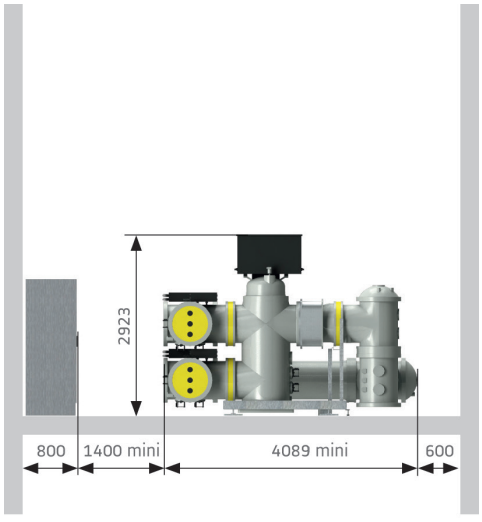




Transformer bay



Line bay



Bus coupler bay

Technical Specifications

GENERAL RATINGS	SF6
Reference electrotechnical standards	IEC /IEEE
Rated voltage	170 kV
Withstand voltages	
- Short-duration power-frequency, phase-to-earth / across isolating distance	325 /375 kV
- Lightning impulse, phase-to-earth / across isolating distance	750 / 860 kVp
Frequency	50 / 60 Hz
Continuous current	up to 4000 A
Short-time withstand current	50 kA
Peak withstand current	130 kAp
Duration of short-circuit	3 s
Installation	indoor (-25... +55°C)

CIRCUIT-BREAKER RATINGS	
First-pole-to-clear factor	1.5
Short-circuit breaking current	50 kA
Short-circuit making current	130 kAp
Operating sequence	O - 0.3 s - CO - 3 min - CO / CO - 15 s - CO
Drive type (three-phase)	pure-spring
Switching capacity	Class S2
Mechanical endurance	class M2
Capacitive currents switching	class C2

DISCONNECTOR AND LOW-SPEED EARTHING SWITCH	
Capacitive current switching	0.1 A
Bus-transfer current switching capability	1500 A / 10 V
Mechanical endurance	class M2

MAKE-PROOF EARTHING SWITCH	
Making current capability	130 kAp
Switching capability - electromagnetic coupling	80 A / 2 kV
Switching capability - electrostatic coupling	3 A / 9 kV
Mechanical endurance	class M1

Gas Data*

The functioning of this equipment relies upon SF_6, a fluorinated greenhouse gas.

	SF_6
Average mass of gas/mixture in the equipment (kg)*	117
GWP_{100} of gas/mixture (CO_2-equivalent)	24,300
CO_2-eq of gas/mixture in the equipment ($t_{co2\text{-}eq}$) *	2,843

*For information purposes only.

For more information visit gevernova.com/grid-solutions

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English
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