

F35

Gas-insulated substations

Alstom F35 gas-insulated substations (GIS) meet the challenges of electrical networks up to 145 kV for all applications: power generation, transmission, distribution, tertiary and heavy industry.



Customised user interface
for total operational safety

CUSTOMER BENEFITS

- Maximum safety
- Compactness with accessibility
- Field-proven reliability
- First-class availability
- Low total cost of ownership
- Smart-grid ready substation
- Reduced environmental impact

145 kV, 40 kA, 3 150 A

Alstom makes the most of 50 years of experience in design, material selection, development, engineering, manufacturing and servicing of gas-insulated substations.

ENVIRONMENT FRIENDLINESS

- Lowest gas weight on the market
- First-in-class SF₆ sealing system

HIGHEST AVAILABILITY

- Best experience and reliability data
- Current transformers outside SF₆
- Drives and accessories at easy reach
- Pure spring circuit-breaker drives

LOWEST COSTS OF LAND AND CIVIL WORKS

- The most compact 145 kV GIS: bay volume 45 % below market average

SHORTEST SITE WORKS

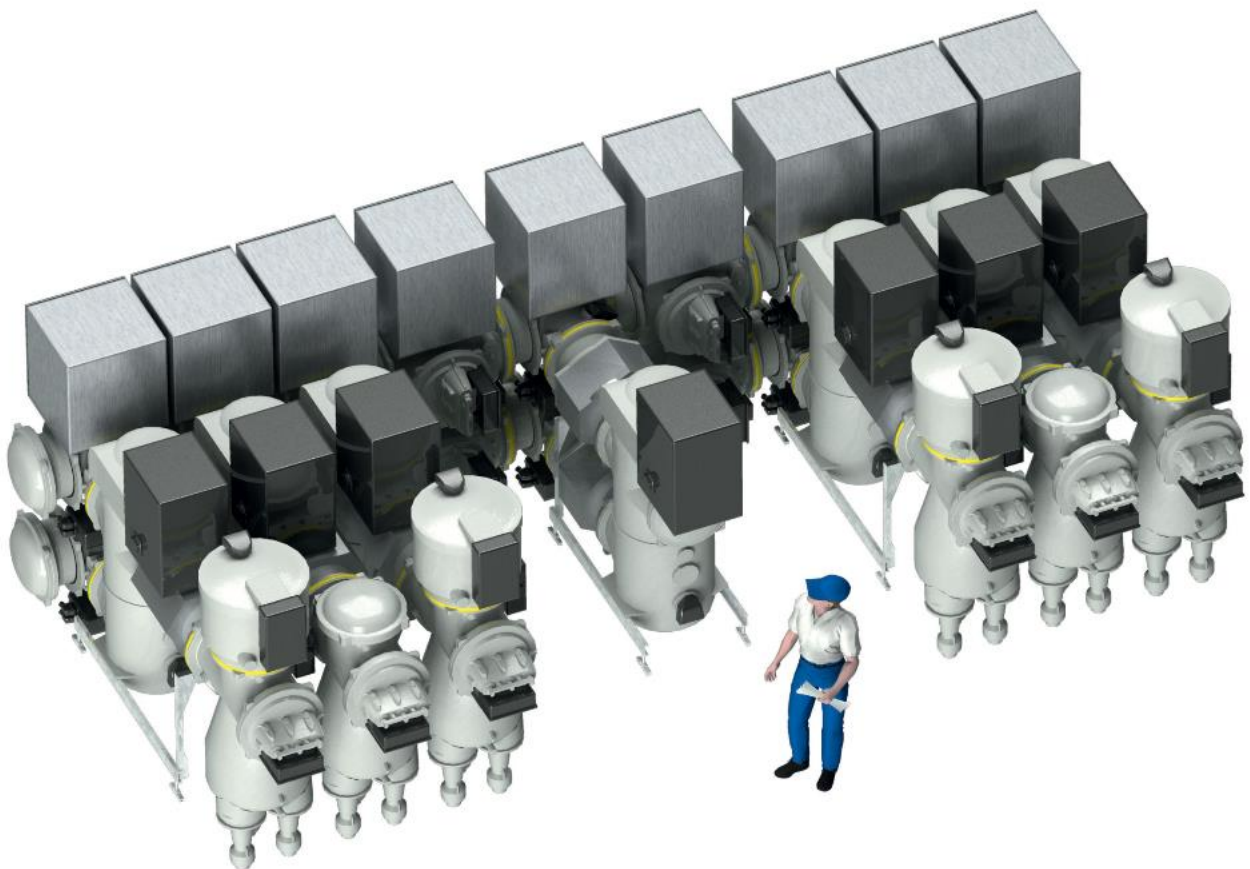
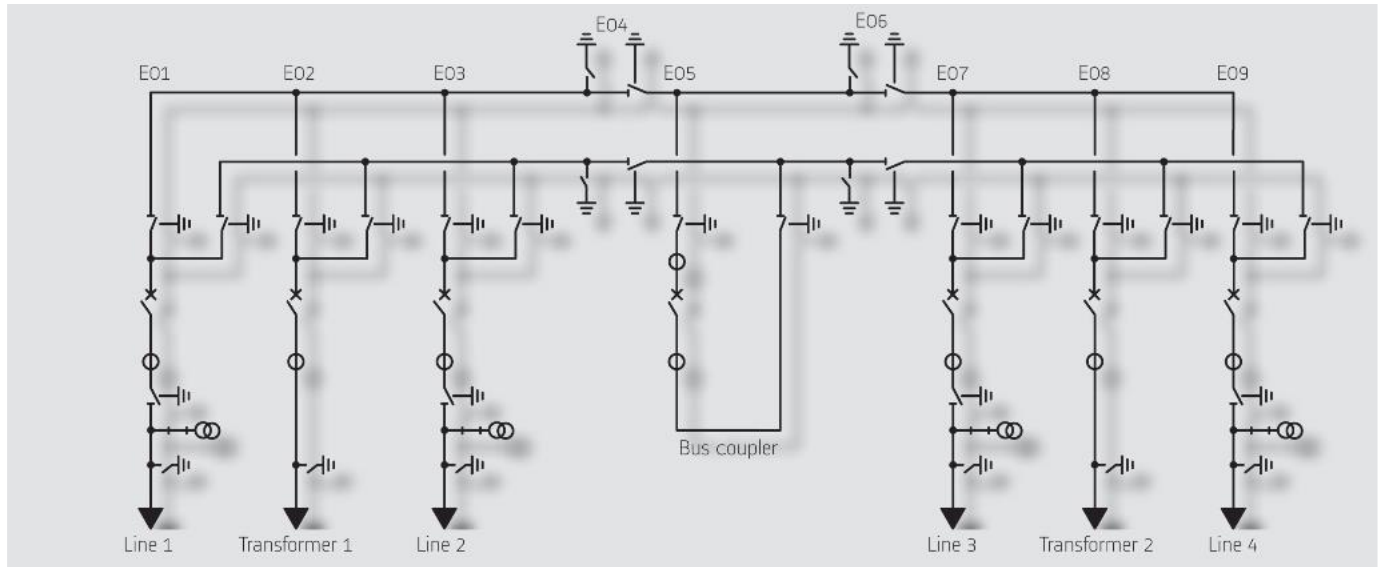
- Up to 2 bays together assembled, wired, tested and shipped
- Up to 6 bays in a single standard container
- Isolating device for voltage transformer / surge arrester

SMART GRID FEATURES

- Full-digital monitoring, control and protection



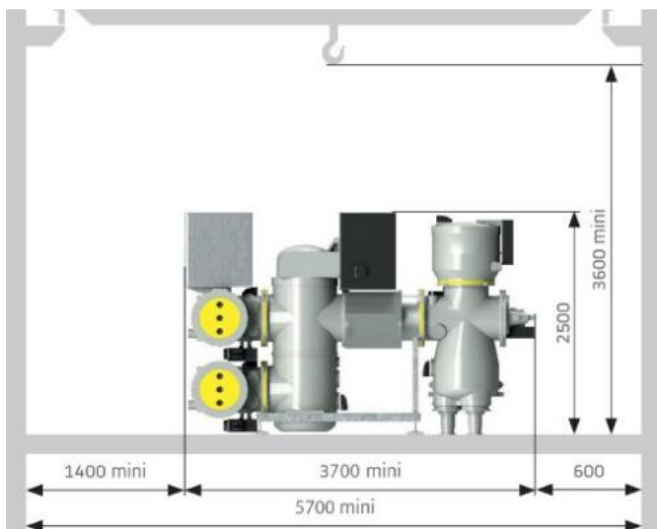
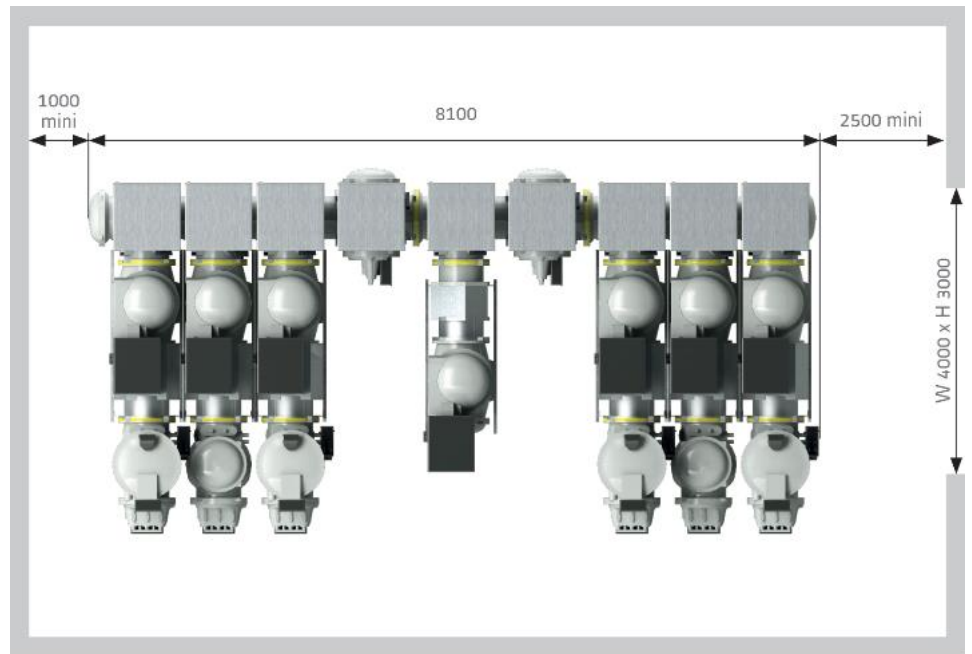
F35 - 145 kV, 40 kA, 3150 A - double busbar diagram



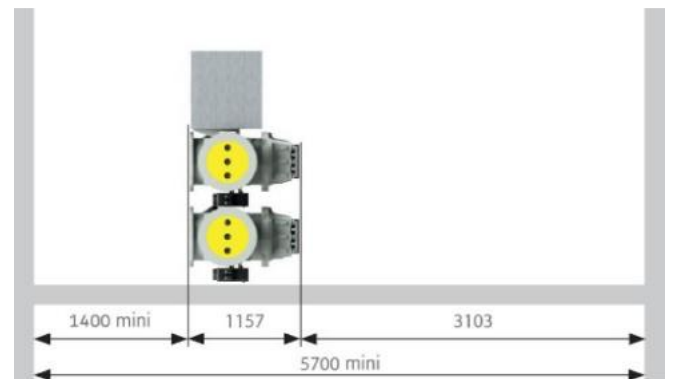
Bay width: 800 mm

Also available:

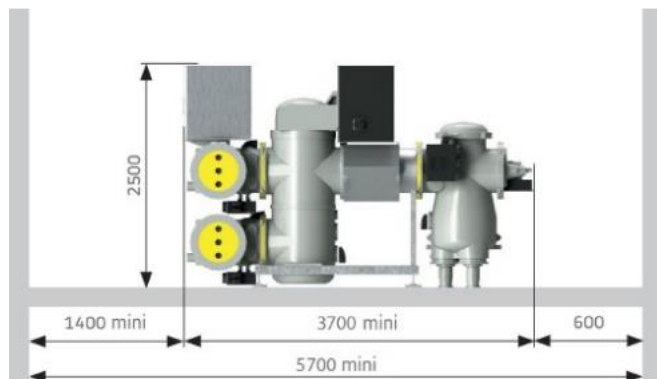
- Other single-line diagrams
- Standalone control cubicles
- Specific layouts



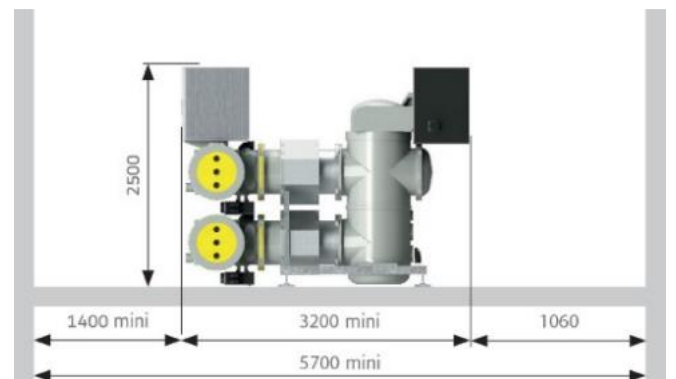
Line bay



Bus section bay



Transformer bay



Bus coupler bay

GENERAL RATINGS

Reference electrotechnical standards		IEC / ANSI / GB
Voltage	kV	145
Withstand voltages		
Short-duration power-frequency, phase-to-earth / across isolating distance	kV	275 / 315
Lightning impulse, phase-to-earth / across isolating distance	kVp	650 / 750
Frequency	Hz	50 / 60
Continuous current	A	up to 3150
Short-time withstand current	kA	40
Peak withstand current	kAp	100 / 108
Duration of short-circuit	s	3
Installation		indoor / outdoor
Ambient temperature range	°C	down to -30 / up to +55

CIRCUIT-BREAKER RATINGS

First-pole-to-clear factor		1.5
Short-circuit breaking current	kA	40
Short-circuit making current	kAp	100 / 108
Operating sequence		0 – 0.3 s – CO – 3 min – CO / CO – 15 s – CO
Drive type (three-phase or single-phase)		pure spring
Breaking time	ms	50
Closing time	ms	95
Mechanical endurance	class	M2
Capacitive switching	class	C2

DISCONNECTOR AND LOW-SPEED EARTHING SWITCH RATINGS

Capacitive current switching	A	0.1
Bus-transfer current switching capability	A / V	2520 / 20
Mechanical endurance	class	M2

MAKE-PROOF EARTHING SWITCH RATINGS

Making current capability	kAp	100 / 108
Switching capability - electromagnetic coupling	A / kV	80 / 2
Switching capability - electrostatic coupling	A / kV	2 / 6
Mechanical endurance	class	M1

Other data available on request.

For more information please contact:

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