

# T155 Dual Gas

## 420 kV (63 kA, 5,000 A) Gas-Insulated Substation Compatible with SF<sub>6</sub> or g<sup>3</sup> gas

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

Our T155 Dual Gas GIS bay – compatible with either SF<sub>6</sub> or g<sup>3</sup> gas – meets the challenges of networks up to 420 kV for power generation, transmission, and energy-intensive industry applications.

### Future-proofed for flexibility

Anticipating future SF<sub>6</sub> regulations, this dual gas equipment is available with either SF<sub>6</sub> or g<sup>3</sup>. Because of its identical foundational design, transmission system operators can utilize the SF<sub>6</sub> version today and easily make the switch to GE's g<sup>3</sup> solution at a later time.

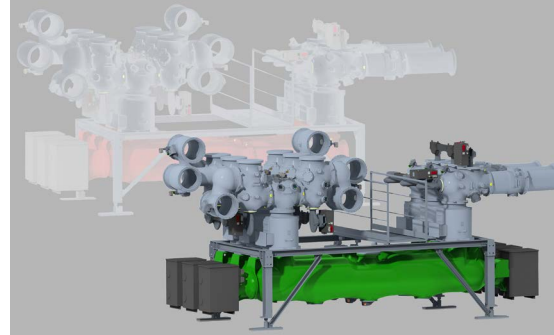
All bay components, except the circuit breaker, are g<sup>3</sup> or SF<sub>6</sub> compatible. They have been type tested to demonstrate the same performances and ratings with both gases.

### The environmental advantage

The T155 is available in a fully SF<sub>6</sub>-free version using GE's g<sup>3</sup> technology, allowing for a 99% CO<sub>2</sub> reduction. While it has the same performance and ratings as SF<sub>6</sub>, its advanced sealing system and improved tightness reveal a lower environmental impact.

### A universal solution

The design of GE's T155 Dual Gas GIS is grounded in more than 50 years of field experience in SF<sub>6</sub> and five years in g<sup>3</sup> technology. Its fully digital monitoring control and protection capabilities enable easy implementation processes and the same operational and maintenance procedures.



### Improved Sustainability

- Lower carbon footprint during a 40- year substation life cycle
- First-in-class gas sealing system
- Improved tightness due to sealing length divided by two, compared to the previous version
- The gas contribution to global warming is reduced by 99% using GE's g<sup>3</sup> gas instead of SF<sub>6</sub>

### Smart Grid Features

- Fully digital monitoring, control, and protection
- Digital power sensing using low power instrument transformers

### Easy Upgrades

- Bays are completely factory-assembled, wired, and tested before shipment
- Easily make the switch to SF<sub>6</sub>-free whenever you're ready
- Similar operational and maintenance procedures as with SF<sub>6</sub> GIS for simple integration
- Compact design that's applicable to all substation applications, including extension of existing substations
- State-of-the-art maintenance isolating device



## Specifications (\*)

| GIS TYPE  | g <sup>3</sup><br>T155g 420 kV   | Combined g <sup>3</sup> bay-SF <sub>6</sub> CB<br>T155 420 kV | SF <sub>6</sub><br>T155 420 kV   |
|---|----------------------------------|---|----------------------------------|
| Reference electrotechnical standards  | IEC                              | IEC/IEEE  | IEC/IEEE                         |
| Rated voltage   | 362-420 kV                       | 362-420 kV  | 362-420 kV                       |
| Withstand voltages  |                                  |   |                                  |
| Short-duration power-frequency, phase-to-earth/across open switching device | 650/815 kV                       | 650/815 kV  | 650/815 kV                       |
| Switching impulse, phase-to-earth / across isolating distance               | 1050/900(+345) kVp               | 1050/900(+345) kVp  | 1050/900(+345) kVp               |
| Lightning impulse, phase-to-earth / across open switching device            | 1425/1425(+240) kVp              | 1425/1425(+240) kVp   | 1425/1425(+240) kVp              |
| Frequency   | 50 Hz                            | 50/60 Hz  | 50/60 Hz                         |
| Continuous current  | up to 5000 A                     | up to 5000 A  | up to 5000 A                     |
| Short-time withstand current  | 63 kA                            | 63 kA   | 63 kA                            |
| Peak withstand current  | 170 kAp                          | 170 kAp   | 170 kAp                          |
| Duration of short-circuit   | 3s                               | 3s  | 3s                               |
| Installation  | indoor/outdoor                   | indoor/outdoor  | indoor/outdoor                   |
| <b>Circuit Breaker Ratings</b>  |                                  |   |                                  |
| First-pole-to-clear factor  | 1.3-1.5                          | 1.3-1.5   | 1.3 - 1.5                        |
| Short-circuit breaking current  | 63 kA                            | 63 kA   | 63 kA                            |
| Short-circuit making current  | 170 kAp                          | 170 kAp   | 170 kAp                          |
| Operating sequence  | O-0.3s-CO-3 min-CO/<br>CO-15s-CO | O-0.3s-CO-3 min-CO/<br>CO-15s-CO                              | O-0.3s-CO-3 min-CO/<br>CO-15s-CO |
| Drive type  | Pure-spring                      | Pure-spring   | Pure-spring                      |
| Mechanical endurance  | M2 class                         | M2 class  | M2 class                         |
| Capacitive switching  | C2 class                         | C2 class  | C2 class                         |
| <b>Disconnecter and Low-speed Earthing Switch Ratings</b>                   |                                  |   |                                  |
| Capacitive current switching  | 0.5 A                            | 0.5 A   | 0.5 A                            |
| Bus-transfer current switching capability                                   | 3000 A / 25 V                    | 3000 A / 25 V   | 3000 A / 25 V                    |
| Mechanical endurance  | M2 class                         | M2 class  | M2 class                         |
| <b>Make-proof Earthing Switch Ratings</b>                                   |                                  |   |                                  |
| Making current capability   | 170 kAp                          | 170 kAp   | 170 kAp                          |
| Switching capability-electromagnetic coupling                               | 160 A / 10 kV                    | 160 A / 10 kV   | 160 A / 10 kV                    |
| Switching capability-electrostatic coupling                                 | 18 A / 20 kV                     | 18 A / 20 kV  | 18 A / 20 kV                     |
| Mechanical endurance  | M1 class                         | M1 class  | M1 class                         |

(\*) typical ratings, other values on request

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