

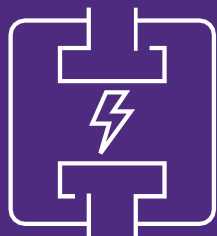
Blue Gas-Insulated Busducts™

Insulation up to 420 kV with
Zero CO₂e emissions and Zero harm

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SIEMENS
energy

Vacuum technology



Clean air



Blue



Delivering Zero with Zero delay

Renewable energy sources are only part of the solution as we aim for the decarbonization of the energy sector. It's essential that we achieve Zero Global Warming Potential (GWP) in the transmission of power as well as in its generation.

Most switchgear still uses SF₆ for insulation – a gas 24,300 times more climate-hostile than CO₂ and one which stays in the atmosphere for up to 1,000 years.

Recognizing the harmfulness of this and other F-gases, the EU has legislated to restrict their use and allows only GWP < 1 solutions if available.

By contrast, our future-ready Blue portfolio, including our gas-insulated busducts, uses Zero fluorinated gases of any kind and has Zero harmful impact on the environment.

Zero SF₆ – just clean air

The sustainable, Zero harm alternative to SF₆ is clean air. This is the only way to achieve Zero GWP.

The Blue gas-insulated busducts operate with clean air insulation. This means Zero harmful greenhouse gases of any kind, with Zero toxic decomposition products and Zero safety requirements during handling and maintenance.

The clean air used – consisting of 80% nitrogen and 20% oxygen, cleaned and free of humidity – can be released into the atmosphere with Zero harmful effects to people or the environment.

At the same time, the busducts maintain the highest standards of technical performance and reliability, together with low lifecycle costs. They are capable of handling voltages up to 420 kV – while the handling, transportation and operation of the units require Zero special training.



Zero environmental impact

- Zero SF₆ and other F-gases
- Zero greenhouse gas emissions
- Zero GWP



Zero impact on health & safety

- Zero toxic insulation gases
- Zero toxic decomposition products
- Zero special safety measures needed during maintenance
- Zero disposal of gases required at end of life



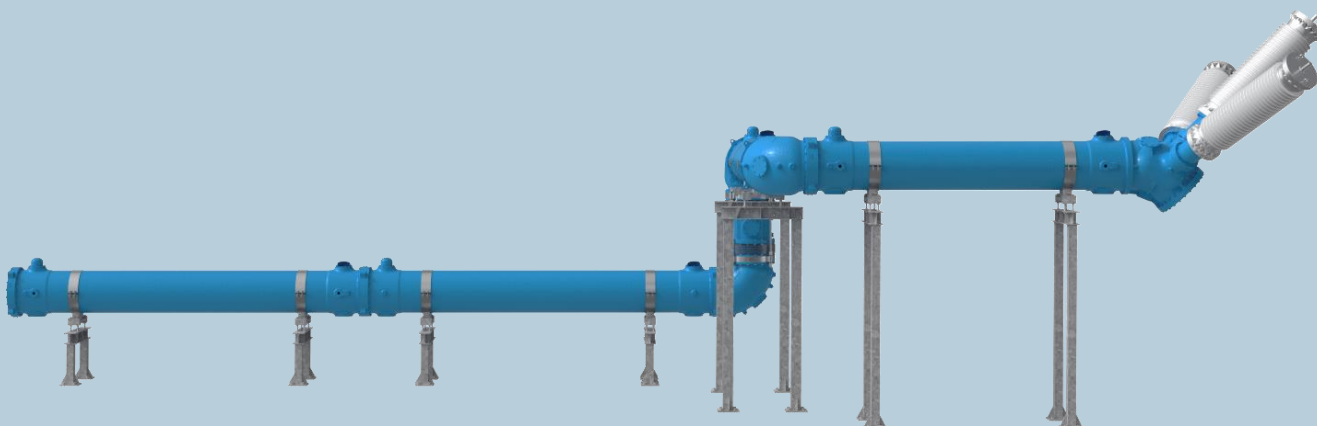
Zero regulation

- Zero regulations on gas handling or density checks
- Zero reporting and accounting of gases required
- Zero F-gas training needed
- Zero issues with current and potential legislation against F-gases



Zero compromise on performance and reliability

- Voltage levels up to 420 kV
- Perfect for low temperature applications without liquefaction of the insulating medium



Blue gas-insulated busducts

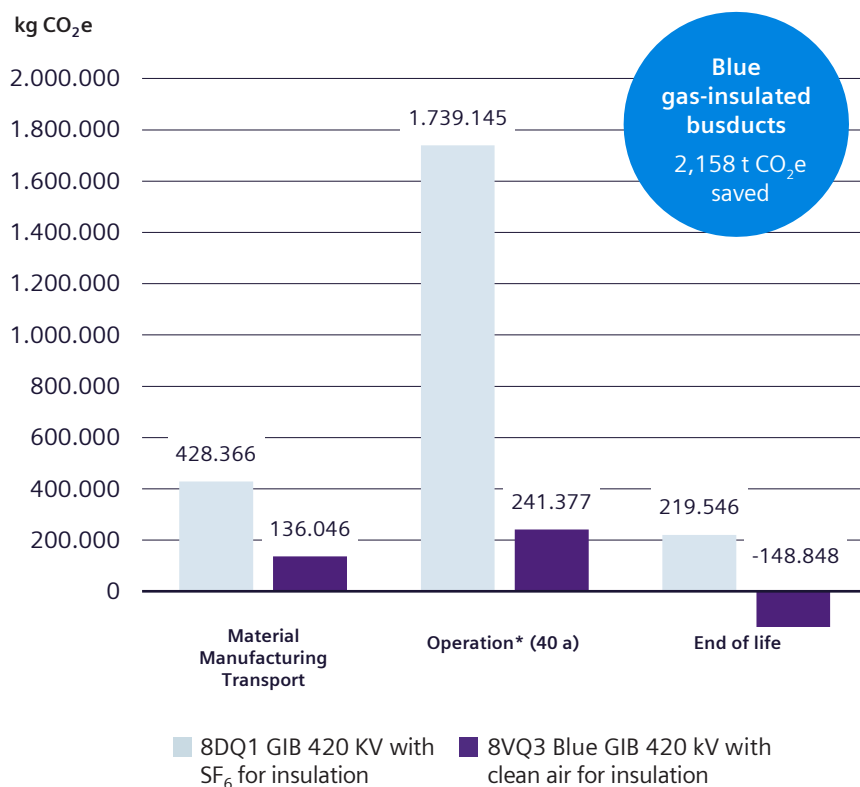
Rated voltage	up to 145 kV	up to 420 kV
Rated frequency	50/60 Hz	50/60 Hz
Rated short-duration power-frequency withstand voltage (1 min)	up to 275 kV	up to 650 kV
Rated lightning impulse withstand voltage (1.2 / 50 µs)	up to 650 kV	up to 1,425 kV
Rated switching impulse withstand voltage (250 / 2500 µs)		up to 1,050 kV
Rated normal current	up to 3,150 A	up to 5,000 A
Rated peak withstand current	up to 170 A	up to 170 kA
Rated short-time withstand current	up to 63 kA (1 s)	up to 63 kA (3 s)
Leakage rate per year and gas compartment (type-tested)	< 0.1 %	< 0.1 %
Insulation medium	clean air	clean air
Weight of SF ₆ or other fluorinated greenhouse gases	0 kg	0 kg
Minimum pole distance		1,200 mm
Ambient temperature range	-50 °C up to +55 °C	-50 °C up to +55 °C
Installation	indoor / outdoor	indoor / outdoor
First major inspection	> 25 years	> 25 years
Expected lifetime	> 50 years	> 50 years
Standards	IEC / IEEE	IEC / IEEE

Other values on request



SF₆ vs. Blue gas-insulated busducts

GWP of the entire product life cycle:



*GWP of insulation gas = 0; GWP of power losses depends on generation mix: for renewable energy mix e.g. hydro, wind is GWP = 0

Global Warming Potential (GWP)

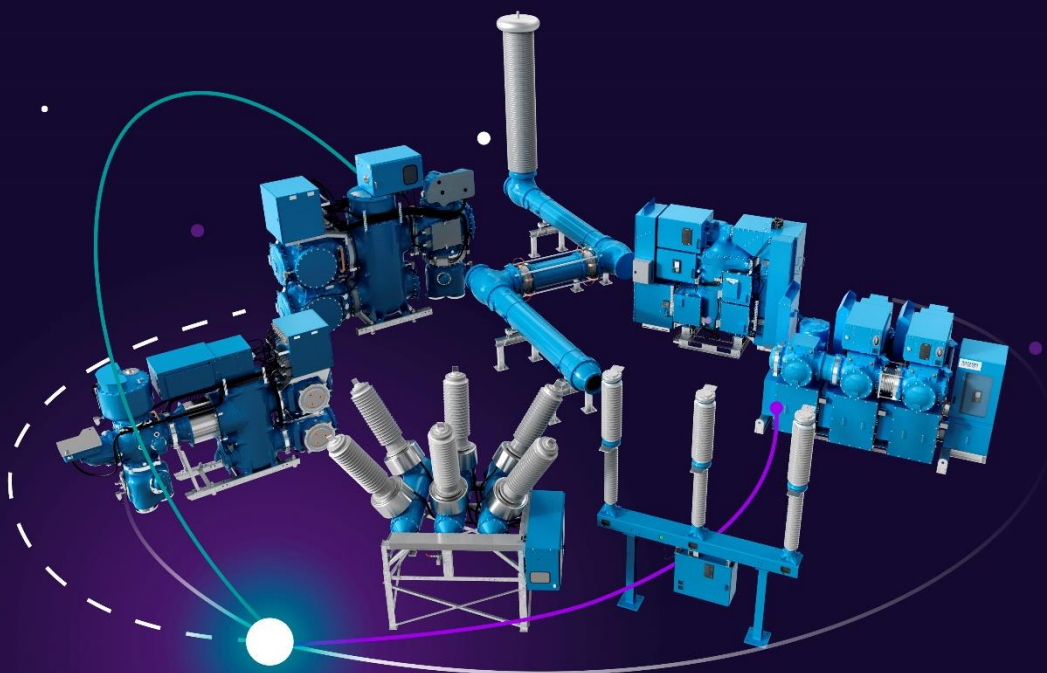
Global warming is the rising of the global temperature due to emissions of greenhouse gases. Blue gas-insulated busducts reduce the GWP significantly by substituting SF₆.

SF₆

- High environmental impact
- Costs for special maintenance and gas density checks
- Costs for special trainings
- Costs for reporting and taxes
- Costs for gas recycling

Clean air

- + No environmental impact
- + Non-toxic, non-hazardous
- + No density checks
- + Training-free
- + Reporting-free
- + Gas recycling-free



Siemens Energy Blue portfolio covers many more F-gas free product lines and ratings.
Learn more at [siemens-energy.com/blue-products](https://www.siemens-energy.com/blue-products)

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