SF_6 Gas Handling
Equipments

SF_6

MADE IN INDIA

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VPI

Vacuum Plant & Instruments
Manufacturing Company Limited

About Us

Established in the year 1965, Vacuum Plant & Instruments Manufacturing Co. Ltd., is an eminent manufacturer and exporter of a wide spectrum of vacuum-based installations such as Insulating Oil Filtration Systems, Vacuum Pressure Impregnating Systems, Resin Casting Systems, Vacuum Drying Systems & SF_6 Gas handling equipments. Widely appreciated by clients across the globe, the products have sturdy construction, require minimal maintenance and are easy to install.

More than 1600 projects are implemented successfully for over 160 clients worldwide.

VPI has its own Research & Development Center, which is recognized by Government of India.

All new product developments & innovations are carried out at this unit.

In year 2015, VPI completed 50 years in business.

Awards & Recognitions

Backed by our experienced workforce and a well facilitated research and development unit, we have in-depth know how in the field of Vacuum Technology. The range of Insulating Oil Filtration Plants, Vacuum Pressure Impregnating Plants, Resin Casting Plants, Vacuum Drying Plants & SF_6 Gas handling equipments offered by us are appreciated by clients across the globe. Owing to our tenacious efforts, we have been presented with national awards for import substitution and new inventions. Some of our awards include:

ISO 9001:2008 Certified

ICRA Certified

Govt. Recognized R&D Unit

- Invention Board of India Award 1967
- Import Substitution Award for Epoxy Mixing and Moulding Plants 1971
- Import Substitution Award for Foil Winding Machine 1976
- Import Substitution Award for High Vacuum Degassing and Filtering Plant for Transformer Oil 1981

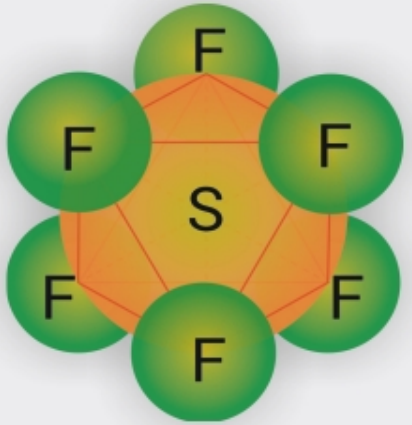
About SF_6

Sulfur Hexafluoride (SF_6) is an inorganic, colorless, odorless, non-flammable, extremely potent greenhouse gas which is an excellent electrical insulator. SF_6 has an octahedral geometry, consisting of six fluorine atoms attached to a central sulfur atom.

SF_6 was discovered by Henri Moissan and Paul Lebeau in 1901

SF_6 is used in the electrical industry as a gaseous dielectric medium for high-voltage circuit breakers, switchgear, and other electrical equipments, often replacing oil filled circuit breakers (OCBs) that can contain harmful Polychlorinated biphenyls (PCBs). SF_6 gas under pressure is used as an insulator in gas insulated switchgear (GIS) because it has a much higher dielectric strength than air or dry nitrogen. This property makes it possible to significantly reduce the size of electrical equipments. This makes GIS more suitable for certain purposes such as indoor placement, as opposed to air-insulated electrical equipments, which takes up considerably more room.

Exposure to an arc chemically breaks down SF_6 though most of the decomposition products tend to quickly re-form SF_6, a process termed "self-healing".



How SF_6 Works & Why Its quality is so important

SF_6 is the most used insulating gas, it works by quenching arcs as contacts of SF_6 switchgear are opened & closed during the normal use of switchgear.

In fact when the arching takes place there is so much energy in that arc that the SF_6 molecules actually break apart into sulfur & fluorinates.

When the SF_6 is very pure the sulfur & fluorinates can reassemble back into an SF_6 molecule, but if there are any impurities such as water (moisture) in the gas, then water can react with those individual atoms creating many other chemicals, such as Sulfur Di-oxide (SO_2) & Hydrofluoric Acid (HF) (Very strong & toxic acid)

If SF_6 breaks down too much then the SF_6 switchgear can malfunction & may require expensive maintenance.

The most important thing you can do to maintain uninterrupted working of switchgear is to test the quality of your SF_6 on regular basis.

Most important & simple test to judge the quality of SF_6 is to measure the amount of moisture in SF_6, also known as DEW POINT Test.

Why

SF_6 Recycling is important

According to the Inter-governmental Panel on Climate Change, SF_6 is the most potent greenhouse gas that has a global warming potential of 23,900 times that of CO_2 when compared over a 100-year period.

Measurements of SF_6 show that its global average mixing ratio has increased by about 0.2 ppt (parts per trillion) per year to over 7 ppt. SF_6 is also extremely long-lived, is inert in the troposphere and stratosphere and has an estimated atmospheric lifetime of 800–3200 years.

Hexa - REVAC Series

Hexa - REVAC Series is simplest solution when only SF_6 gas filling & air evacuation from switchgear is required. Easy to operate & a suitable solution with no SF_6 emission.

Available options:

Pressure Regulator: Inlet Pressure Max 150 Bar
Outlet Pressure: up to 10 Bar (Adjustable)
Vacuum Pump: 6 / 14 / 18 m^3/h
Ultimate Vacuum: ⩽ 1 mbar (abs)

Rubber / Steel Hose: 8 / 16 / 20 DN
Length: up to 10 Mtrs.
Hose for Vacuum Pump
Hose for SF_6 refilling
SF_6 Coupling: 8 / 20 DN (Al / Brass / S.S.)
Pressure / Vacuum Mechanical Gauges

Valves: 10 / 20 DN (2 Way / 3 Way)
Operating Voltage: 230 Volts AC, 50 Hz

Hexa - S Series

Hexa - S Series is compact, simple to operate & a suitable solution for handling small quantities of SF_6 gas in SF_6 switchgear .

Available options:

Compressor: 100% Oil-less Piston
Displacement: 1.5 / 2.5 m^3/h
Discharge Pressure: 25 / 50 Bar

Vacuum Pump: 20 / 30 / 40 m^3/h
Ultimate Vacuum: ⩽ 1 mbar (abs)
Storage Tank*: 50 Ltrs to 100 Ltrs
Storage Tank Pressure: 25 / 50 Bar

Filter Rating: 0.1µ / 1µ / 5µ (Any one)
SF_6 Recovery: 50 mbar (abs) / 1 mbar (abs)
Process Control: Manual or Fully Automatic
Operating Voltage: 230 / 415 Volts AC, 50 Hz

** Standard pressure vessels are as per IS 2825, but if required EC 97/23 and CE marked Pressure Vessels can also be supplied.*

Hexa - M Series

Hexa - M Series is compact, simple to operate & a suitable solution for efficient handling of SF_6 gas in SF_6 switchgear.

Available options:

Compressor: 100% Oil-less Piston
Displacement: 6 / 15 m^3/h
Discharge Pressure: 25 / 50 Bar

Vacuum Pump: 40 / 60 / 100 m^3/h
Ultimate Vacuum: ⩽ 1 mbar (abs)
Storage Tank*: 300 Ltrs to 1000 Ltrs
Storage Tank Pressure: 25 / 50 Bar

Filter Rating: 0.1µ / 1µ / 5µ (Any one)
SF_6 Recovery: 50 mbar (abs) / 1 mbar (abs)
Process Control: Manual or Fully Automatic
Operating Voltage: 415 Volts AC, 50 Hz

** Standard pressure vessels are as per IS 2825, but if required EC 97/23 and CE marked Pressure Vessels can also be supplied.*

Hexa - L Series

Hexa - L Series is our largest service cart, is simple to operate & a suitable solution for handling large quantities of SF_6 gas in SF_6 switchgear.

Available options:

Compressor: 100% Oil-less Piston
Displacement:17/25 m^3/h
Discharge Pressure: 25 / 50 Bar

Vacuum Pump: 30 / 40 / 60 m^3/h
Ultimate Vacuum: ⩽ 1 mbar (abs)
Storage Tank*: 300 Ltrs to 1000 Ltrs
Storage Tank Pressure: 25 / 50 Bar

Filter Rating: 0.1µ / 1µ / 5µ (Any one)
SF6 Recovery: 50 mbar (abs) / 1 mbar (abs)
Process Control: Manual or Fully Automatic
Operating Voltage: 415 Volts AC, 50 Hz

** Standard pressure vessels are as per IS 2825, but if required EC 97/23 and CE marked Pressure Vessels can also be supplied.*

Functions of SF_6 Service Carts

- Air evacuation from high pressure SF_6 gas Storage Tank or in full system with filters & dryers
- Air evacuation from switchgear
- Air evacuation from SF_6 Gas Cylinders
- Gas transfer from switchgear to high pressure gas storage tank
- Gas transfer from high pressure gas storage tank to switchgear
- Gas transfer from SF_6 gas cylinders to high pressure gas storage tank
- Gas transfer from high pressure gas storage tank to SF_6 gas cylinder
- Gas transfer from gas Cylinder to gas cylinder
- SF_6 gas close circulation through system high pressure gas storage tank

Note: Functions applicable to all cart series (Except REVAC series).

Equipment Highlights

- 100% Oil-less piston compressor.
- Complete stainless steel piping, strong & lifelong.
- Stainless Steel Valves.
- Weather proofing standard for all carts.
- Upto 12" PLC+HMI all in one solution for automation.
- Lifting arrangement suitable for cranes.
- Valve chart on each cart for ease of operation.
- Economical spares & maintenance cost.
- Less lead time for parts.
- Maximum possible functions incorporated in each cart.
- Possibility of parallel functions.
- All carts except REVAC Series are designed to store SF6 at 25 bar for gaseous or up to 50 bar for liquid storage

Optional Components / Instrumentation

Instrumentation:

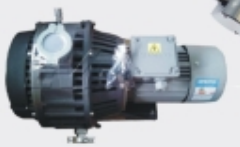
- Digital Vacuum Controller
- Online Dew Point Sensor
- SF_6 Multi Parameter Sensor (7 Parameters in Single Sensor)
- Portable Dew Point Measuring Instrument
- Hand Held SF_6 Leak Detector
- Digital Display Of SF_6 Recovery Pressure
- SF_6 Density Gauge (Dial / Electronic Type)
- Cylinder / Tank Weighing Scale










Components:

- Vane Vacuum Pumps: Single Stage or Double Stage
  Capacity: up to 200 m^3/h
- Dry Vacuum Pumps: 7 / 15 / 30 / 55 m^3/h
  Ultimate Vacuum: 0.08 mbar (abs)




SF_6 Accessories

Rubber Hoses (64 Bar Service)
Sizes : 10 / 20 / 40
Length : up to 20 Meters

Stainless Steel Wire Braided Hoses (64 Bar Service)
Sizes : 10 / 20 / 40
Length : up to 20 Meters

Pressure Regulators
Max Inlet Pressure : 200 Bar
Max Outlet Pressure : 2 to 50 Bar (As per requirement)

Custom made adaptors for SF_6 gas bottles.

Spare Tools














Various Cart

SF_6 Valves & Couplings

SPECIFICATIONS

Pressure Options: -1 to +64 bar

Size: 8 / 20 / 40 DN

Sealing Performance: 10^{-5} mbar-ltrs/sec

Material Option: Aluminium, Brass, Stainless Steel

Contact us for your customized requirements

X-345-R001

X-VK/F-02/8

X-VK/A-02-8

X-VK/B-03-8

X-VK/BG-03/8

X-272-R001

X-778-R001

X-VK/KN-04/8

SF_6 Valves & Couplings


X-372-R001


X-373-R001


X-VK/F-02/20


X-VK/A-02/20


X-VK/B-03/20


X-VK/BG-03/20


X-VK/FL-01/20


X-777-R001


X-685-R001


X-VK/KN-04/20


X-282-R001


X-283-R001

Customized SF_6 Solutions

- Consolidation station for SF_6 gas bottles.
- Large compressor stations for handling SF_6 from particle accelerator systems.
- Station for removal of impurities & by-products from SF_6 gas. (Particles, Moisture, Air, SO_2, HF, CF_4)
- 100% Oil-less Piston Compressors
  Displacement : Max up to 200 m^3/h*
  Discharge Pressure : Max up to 150 Bar*

** For Special or customized requirements.*

Clients


HPL
The Power of Technology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MANAGEMENT BOARD

VPI

VACUUM PLANT & INSTRUMENTS MANUFACTURING COMPANY LIMITED

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50 Years of Business

GOLDEN JUBILEE

An ISO 9001:2008 Certified Company

PRODUCTS

- Epoxy Mixing & Casting Systems
- Oil Handling Systems
- Transformer Oil Filtration Equipments
- Vacuum Drying Autoclaves
- Vacuum Pressure Impregnation Systems
- Vacuum Pumping Systems
- Vapour Phase Drying Systems
- Oil Storage Tanks

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