

KAJI
COMPRESSOR

SF6 Gas Handling System

KAJI
COMPRESSOR



4MPa liquid storage,
semi automatic operation, 2013

SF6 Gas Handling System



KAJI TECHNOLOGY CORPORATION

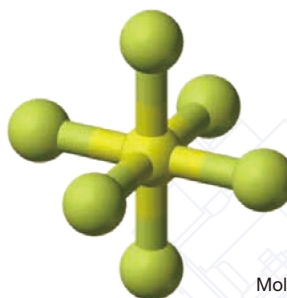
1. What's SF6 Gas?

SF6 gas has excellent electrically insulating characteristics and thermal properties.

Therefore it is used in gas insulated switchgears, gas circuit breakers and gas transformers as an insulating & arc quenching media to protect the said apparatuses. And SF6 gas is harmless. However it shall not be released to an atmosphere, because it has a very high warming potential.

■ SF6 Physicality

- Name: Sulfur hexafluoride
- Inert, non-toxic and non-flammable
- Colorless and odorless
- 5 times of the air weight
- No reaction chemistry
- High global warming potential



Molecule model of SF6

2. What's SF6 Gas Handling System?

SF6 gas handling system has the following features.

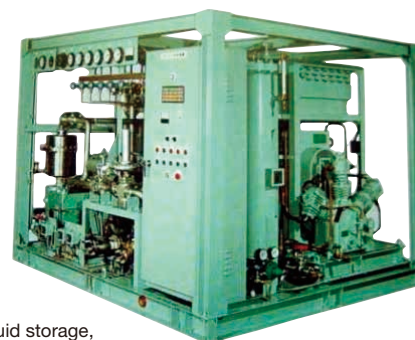
- SF6 gas vacuum withdrawal from the gas insulated switchgear, purification, filtration and storage in the form of a liquid or compressed gas.
- Air evacuation from the gas insulated switchgear.
- SF6 gas charged into the gas insulated switchgear after vaporization, purification and filtration. (SF6 is vaporized in the case of the liquid.)

3. Kaji SF6 Gas Handling System history

As one department of the reciprocating compressor manufacturer with a history of over 100 years, having adopted the build-to-order manufacturing system, we started production of the SF6 handling system in Year 1976. And we are the largest manufacturer of handling systems in the Far East Asia areas, having manufacturing-operation achievements of over 1,200 units at the year of 2013.



5MPa liquid storage, semi automatic operation, 2012



4MPa liquid storage, full automatic operation, 1986

4. Kaji SF6 Gas Handling System features

- The compressor was self-developed for special purpose for use in SF6 gas, and has a large flow and lower power-consumption mechanism required for the handling system.
- The superior designs based on the valuable experience of manufacturing and operation of many kinds of the handling system enable the handling system to demonstrate the high efficient operation of the withdrawal, charging and evacuation.
- The handling system has a capacity for removal of water and dusts, capable of meeting the SF6 gas recycling standards with various ideally designed filters. (The removal of the decompressed gas will be optionally possible).
- The handling system is equipped with a compressor, parts, vessels and pipe connectors which can reduce gas leakages to the limit for realizing no air-mixtures.
- The handling system has a high reliability, long life and easy to operate mechanism produced by a large number of achievements.
- In compliance with the customers' requests, we will manufacture handling systems equipped with a wide range of compressors (1.5-55kW power), that are optimum for applications.
- According to the customers' requests, operation of the handling system can be set to any of the manual, semi-automatic(Automatic stop at the stopping) and full-automatic operation modes.
- The handling system is used in various applications (For transformer substations, insulation apparatus manufacturing facilities, central gas management of the said facilities and acceleration ingeniousness). In addition, we are able to manufacture various handling systems: System for storing SF6 gas in a form of compressed gas (1-2MPa=10 – 20bar); System specialized for specific applications; and special equipment capable of separating the air mixed in the SF6.
- We have many service centers both in Japan and abroad, thereby being able to make speedy maintenance.

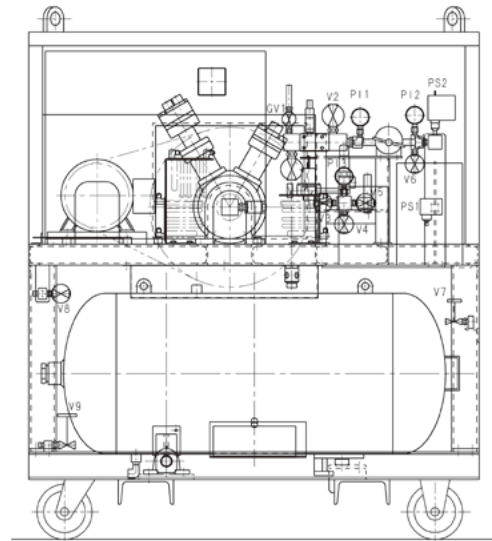


1MPa gas storage,
semi-automatic operation, 2012

Model: KL50V-5.5OL-PII



Similar system's photo



Similar system's drawing

Features:

- An original oil-less compressor and oil-free vacuum pump for withdrawal are built-in.
- Portable, compact & light weight, and liquid SF6 storage type SF6 gas handling system.

Specifications:

- Gas compressor(14m³/h*, 5MPa=50bar, 5.5kW, direct suction to increase the withdrawal speed).
*: Average discharge capacity(0.6 → 0MPa).
- Vacuum pump for withdrawal(15m³/h, ultimate press.=5Pa · abs=0.05mbar · abs, 0.75kW).
- Vacuum pump for evacuation(40m³/h, ultimate press.=0.2Pa · abs=0.002mbar · abs, 1.5kW).
- Dryer with a particle filter(0.1μm) for purification and filtrations of SF6 gas.
- Air cooling condenser to liquefy SF6 gas for increasing the withdrawal speed.
- Storage tank(300lit) with a heater(5kW) to vaporize SF6 liquid, and a digital weight indicator.
- With safety devices (High press. alarm, weight high signal, and safety valve).
- With lifting hooks and folk lift guards.
- Length × wide × height / Approx. weight : 1635 × 965 × 1931mm / 1400kg
- Location : Indoor

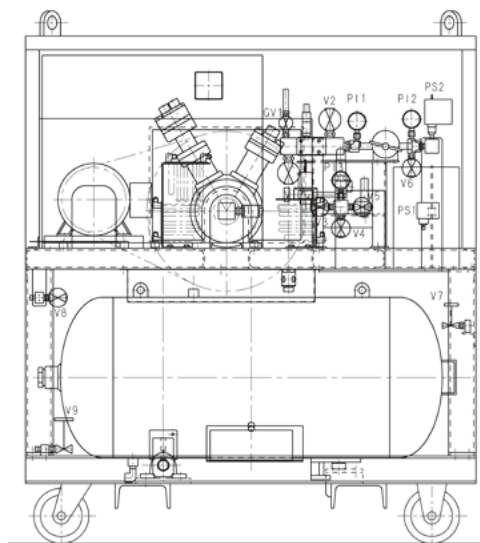
Ordering specifications:

- Voltage, 50Hz or 60Hz
- Manual operation or semiautomatic operation

Model: KL50V-5.5OL-PⅢ



Similar system's photo



Similar system's drawing

Features:

- An original oil-less compressor and oil-free vacuum pump for withdrawal are built-in.
- Portable, compact & light weight, and liquid SF₆ storage type SF₆ gas handling system.
- High speed vacuum withdrawal with a large size vacuum pump for withdrawal.

Specifications:

- Gas compressor(14m³/h*, 5MPa=50bar, 5.5kW, direct suction to increase the withdrawal speed).
*: Average discharge capacity(0.6 → 0MPa).
- Vacuum pump for withdrawal(30m³/h, ultimate press.=5Pa · abs=0.05mbar · abs, 1.5kW).
- Vacuum pump for evacuation(40m³/h, ultimate press.=0.2Pa · abs=0.002mbar · abs, 1.5kW).
- Dryer with a particle filter(0.1μm) for purification and filtration of SF₆ gas.
- Air cooled condenser to liquefy SF₆ gas for increasing the withdrawal speed.
- Storage tank(300lit) with a heater(5kW) to vaporize SF₆ liquid, and a digital weight indicator
- With safety devices(High press. alarm, weight high signal, and safety valve).
- With lifting hooks and folk lift guards.
- Length × wide × height / Approx. weight : 1635 × 965 × 1931mm / 1450kg.
- Location : Indoor

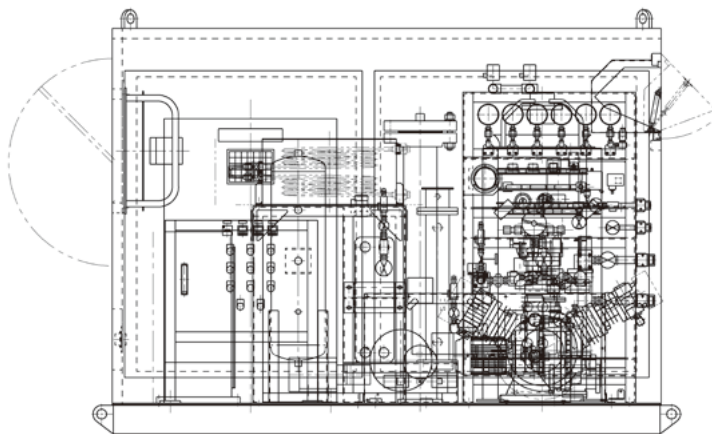
Ordering specifications:

- Voltage, 50Hz or 60Hz
- Manual operation or semiautomatic operation

Model: KL40V-11OL-RSPII



Similar system's photo



Similar system's drawing

Features:

- An original middle capacity oil-less compressor, and oil-free vacuum pump for withdrawal are built-in.
- Portable, middle size & middle weight, and liquid SF6 storage type SF6 gas handling system.
- High speed withdrawal with a middle size compressor and middle size vacuum pump for withdrawal.

Specifications:

- Gas compressor($33.2\text{m}^3/\text{h}^*$, $4\text{MPa}=40\text{bar}$, 11kW , reduced suction to decrease the peak power)
*: Average discharge capacity($0.6 \rightarrow 0\text{MPa}$)
- Vacuum pump for withdrawal($30\text{m}^3/\text{h}$, ultimate press.= $5\text{Pa} \cdot \text{abs}=0.05\text{mbar} \cdot \text{abs}$, 1.5kW)
- Vacuum pump for evacuation($63\text{m}^3/\text{h}$, ultimate press.= $0.2\text{Pa} \cdot \text{abs}=0.002\text{mbar} \cdot \text{abs}$, 2.2kW)
- Dryer with a particle filter($0.1\mu\text{m}$) for purification and filtration of SF6 gas
- Refrigerator type condenser to liquefy the SF6 gas efficiently to increase the withdrawal speed.
- Plate type vaporizer(5kW) to vaporize the SF6 liquid efficiently.
- With safety devices(High press, alarm and safety valve)
- With lifting hooks
- Length \times wide \times height / Approx. weight : $2900 \times 1980 \times 2091 \text{ mm}$ / 3100kg
- Location : Outdoor

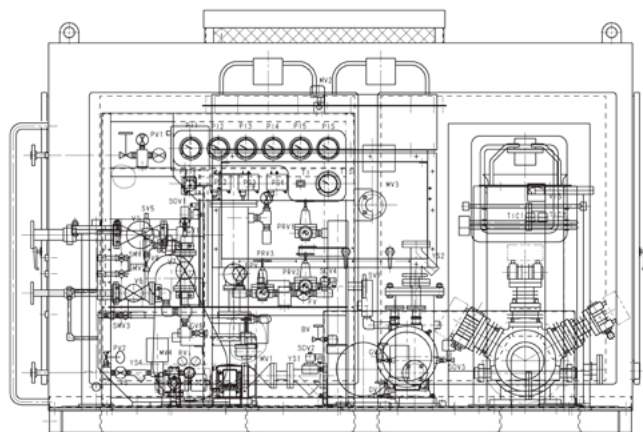
Ordering specifications:

- Voltage, 50Hz or 60Hz
- Manual operation or semiautomatic operation

Model: KL50V-19OL-SPII



Similar system's photo



Similar system's drawing

Features:

- An original middle capacity oil-less compressor and oil-free vacuum pump for withdrawal are built-in.
- Portable, middle size & middle weight, and liquid SF6 storage type SF6 gas handling system.
- High speed withdrawal by middle size compressor and large size vacuum pump for withdrawal.

Specifications:

- Gas compressor(60m³/h*, 5MPa=50bar, 18.5kW, direct suction to increase the withdrawal speed).
*: Average discharge capacity(0.6 → 0MPa).
- Vacuum pump for withdrawal(60m³/h, ultimate press.=5Pa · abs=0.05mbar · abs, 2.2kW).
- Vacuum pump for evacuation(63m³/h, ultimate press.=0.2Pa · abs=0.002mbar · abs, 2.2kW).
- Dryer with particle filter(0.1μm) for purification and filtrations of SF6 gas.
- Air cooled condenser to liquefy SF6 gas efficiently to increase withdrawal speed.
- Plate type vaporizer(5kW) to vaporize SF6 liquid efficiently.
- With safety devices(High press. alarm, and safety valve).
- With lifting hooks.
- Length × wide × height / Approx. weight : 3500 × 1980 × 2400 mm / 4600kg.
- Location : Outdoor

Ordering specifications:

- Voltage, 50Hz or 60Hz
- Manual operation or semiautomatic operation

LINE OF PRODUCTS

- Compressors
 - Oil-Free Compressors (3.7~730kW)
 - Lubricating Compressors (0.4~600kW)
 - Special High Pressure Compressors (Max. 98 MPaG)
 - Oil-less H₂ Gas Compressors for H₂ station
- Gas collecting, refining and refilling equipment
- Heat exchangers
- Pressure Vessel



KAJI TECHNOLOGY CORPORATION

☐ Head Office and Plant

6,Bodai, Mihara-ku, Sakai-city, Osaka 587-0064, Japan

TEL : (072) 361-0881

☐ Tokyo Branch

Sales Dept Sales Sec (Tokyo)

Technical Service Dept. Tokyo After-Sales Service Sec.

Hulic Kasai Rinkai 4F 3-6-4, Rinkai-cho, Edogawa-ku, Tokyo 134-0086 Japan

TEL : (03) 5679-6910

☐ Head Office

Sales Dept Sales Sec (Osaka)

Technical Service Dept. Osaka After-Sales Service Sec.

6,Bodai, Mihara-ku, Sakai-city, Osaka 587-0064, Japan

TEL : (072) 361-9500

<https://www.kajitech.com>