

AGRU-4X

HIGHEST ACCURACY & LOWEST COST




SF₆ Gas Recovery Unit

AGRU-4X

- Storage capacity: 22,7 Kg
 - Vacuum Capacity: (Optional vacuum pressure < 1mbar)
 - +6m³/h (60Hz - 110V)
 - +5m³/h (50Hz - 220V)
 - Evacuate pressure < 0,67 mbar
 - Weight: 245 lbs - 111 Kg
 - Dimensions: 46"x22"x26" - 1170x560x660 mm - (H x W x D)
- Optional:
Tank heater, Insulation blanket, SS tubing and hoses

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This cart is ideally suited for servicing small volume SF₆ equipment. All processes required for servicing SF₆ equipment can be performed with this cart. This AGRU-4X has the ability to reduce the vacuum level to below 1 mbar whilst recovering SF₆. This offers 99.9% SF₆ recovery. The equipment is designed for the recovery, temporary storage, conditioning, and dispensing of SF₆ Gas. The equipment is designed for use in field service of insulated metal clad switchgear, bus ducts and individual circuit breakers. The AGRU-4X SF₆ Gas Servicing Cart shall be fully assembled on a two-wheeled heavy-duty handcart, which shall be sufficiently braced to minimize vibration. Handcart will be complete with lifting eye, hose hook and power cable storage.

Functions:

- Recover, purify and store SF₆ Gas from the switchgear to the storage tank.
- Evacuation:
- Service hoses < 1.33 mbar
- SF₆ Gas cart down < 0.67 mbar
- Air and moisture from the switchgear < 0.67 mbar
- Purify SF₆ Gas by recirculating through the filter system:
 - (D1) - Dryer Filter - Contains activated alumina to aid in the drying and purification of SF₆ Gas.
 - (P1) - Purification Filter - Contains Molecular Sieve 13X to remove arcing by-products.
 - (F1) - Particulate Filter - Will filter all particulate matter down to 0.1 micron nominal.
- Pressure regulated recharging of SF₆ Gas to the switchgear from the storage tank.
- Evacuate SF₆ Gas from the cart to an external storage tank for maintenance purposes.



CIRCUIT BREAKER - 72,5kV:
Weight of SF₆: 29 lbs - 13 Kg

Features:

- Mounted on a convenient hand cart with 10" (250mm) pneumatic tires for ease of movement.
- Very easy to operate - only two valves to switch operating modes.
- High pressure, direct-drive oil-less compressor with 1000:1 compression ratio (capable of 1000psi - 69 bar).
- Capable of liquid SF₆ storage (50lbs.@60°F / 22.7 kgs.@15.5 °C)
- Purifies, dries and filters to 0.1 microns during recovery and re-pressurization.
- Filters are easily changed without disconnecting any tubing or using any special tools.
- Auxiliary connection allows for infinitely expandable storage through use of external tanks.
- Comes complete with 9.8ft / 3m hoses and power cable.
- Colour change moisture indicator to monitor moisture in gas.
- Capacity Compressor Flow Rate 1 m³/h.

Applications:

- Recover and purify SF₆.
- Evacuate air and moisture prior to filling.
- Consolidate SF₆ cylinders.
- Store SF₆ in liquid state in onboard storage or auxiliary bottles.
- Regulated filling of SF₆ equipment.
- Purification of SF₆ (removes particles, moisture, and SF₆ decomposition products).



AGRU-4X Specifications

Type	Portable SF ₆ Gas Recovery Unit.
Physical specifications	21-1/2" (546 mm) Wide x 26" (660 mm) Deep x 46" (1,168 mm) // 245 lbs. (111kgs.).
Input power	120Vac/60Hz - 220Vac/50Hz - other available configuration (choose it in the order).
SF₆ Compressor	One High Pressure Single Stage Direct Drive Oil-less Compressor – up to 1,000 psig (69 bar). Motor 0.24kW, 3550 rpm. Metal valve construction.
Suction pressure regulator	One Suction pressure regulator, brass body, 0-30 psig (0-2 bar) spring.
Equalization circuit	One Equalization circuit, to allow for high-pressure restarts of the compressor.
Discharge check valve	One Discharge check valve, brass, prevents high pressure going back to compressor when performing a low-pressure equalization.
Condenser	One High efficiency, 4-pass, air-cooled SF ₆ condenser to aid in liquification of SF ₆ at higher ambient temperatures.
Discharge pressure	One High discharge pressure switch set to automatically shut unit down when it reaches maximum allowable pressure.
SF₆ Vacuum compressor	One scroll type SF ₆ vacuum compressor to reduce the vacuum level whilst recovering SF ₆ to less than 1 mbar.
Storage Tank	Volume: 1215 Cu. In. - 0.02 m ³ . Designed for: 500 PSIG (35 bar), 250°F (121°C) According to: Fabricated and labelled to ASME Section VIII Div. 1. High liquid level shut-off switch set to automatically shut unit down when there is 50 lbs. @ 60°F / 22.7 kgs. @ 15.5 °C of liquid SF ₆ @ Tank also includes: relief valve and inlet/outlet valves.
Filters	(D1) - Dryer Filter - Contains activated alumina to aid in the drying and purification of SF ₆ Gas. (P1) - Purification Filter - Contains Molecular Sieve 13X to remove arcing by-products. (F1) - Particulate Filter - Will filter all particulate matter down to 0.1 micron nominal.
Valves	Designed for pressure, temperature and flow. Bronze body with Teflon seats and seals, quarter turn.
Pressure Gauges	One for suction pressure (compound). One for discharge pressure. One for regulated pressure.
Vacuum Gauge	0-30" Hg (0 to -1 bar) for vacuum system.
Pressure Regulator	One Pressure Regulator, Brass body, 0-100 psig (0-6.9 bar) spring, to allow for safe regulated filling of SF ₆ equipment.
Hoses	Two Permeation Rubber Resistant Hoses: 1/4" (6 mm) I.D. X 10 Ft. (0.91 meter) Long, complete with quick disconnect self-sealing end fittings. Hoses will be suitable for system pressure, temperature and flow.

AGRU-4X - Optional Upgrades and Accessories

Stainless Steel (SS) Tubing	Unit can be supplied with stainless steel tubing replacing the standard copper tubing.
Stainless Steel Hoses	Unit can be supplied with stainless steel hoses replacing the standard rubber hoses.
Vacuum Gauge 0-40 torr (53mbar)	High accuracy barometrically compensated vacuum gauge can be supplied with unit to measure vacuum when drying out the SF6 equipment.
Storage Tank Heater	300 W storage tank heater. Heater comes with its own power cable and has a thermostat preset at 125 °F (52 °C) and is protected from overheating by a thermal cut-off. The heater maintains an even temperature for a constant positive pressure that speeds up the charging process.
Storage Tank Insulation Blanket	Storage tank insulation blanket can be provided to help keep the storage tank warm when performing the charging process.
DN-8 Style Quick Connections	Unit can be supplied with DN-8 style quick connections on equipment and hoses.
Increase Hose Length	Unit can be supplied with 6m. hoses instead of 3m.
Final Vacuum Pressure	Unit can be supplied with a final vacuum pressure < 1mbar

AGRU-4X – Spare Parts

Filter D-1	Dryer Filter – recommended to change each 50 hours of compressor work.
Filter P-1	Purification Filter – recommended to change each 50 hours of compressor work.
Filter F-1	Particulate Filter – recommended to change each 50 hours of compressor work.
Vacuum Pump Oil	Vacuum pump oil level has to be checked each time you turn it on. Available in two quantities: 946 ml or 3780 ml.