

SF₆ gas filling cart Model GFU08

WIKA data sheet SP 63.08

Applications

- Emission-free refilling of SF₆ gas compartments
- Optionally with integrated scale
- Optionally with vacuum pump

Special features

- Gas cylinder secured for maximum safety
- Error-free handling design to avoid emissions
- High-accuracy scale with large digital indication
- Precise SF₆ gas filling process by weighing technology
- 5 vacuum pumps to choose from

Description

The GFU08 series of robust and modular gas cylinder transport carts are used for the filling and refilling of SF₆ gas in the required gas compartment. The modular design enables worldwide application through the various mechanical and electrical connections.

The model range is split into 4 versions:

- Model GFU08-B: Filling cart
- Model GFU08-W: Filling cart with scale
- Model GFU08-E: Filling cart with vacuum pump
- Model GFU08-C: Filling cart with scale and vacuum pump

Models GFU08-E and GFU08-C are fitted with vacuum pumps. With these, the air is extracted from the SF₆ gas compartments so that, afterwards, a professional SF₆ gas filling can be made. The 16 m³/h vacuum pump built into the models GFU08-E and GFU08-C as standard, enables a fast evacuation down to < 1 mbar (0.75 Torr). For larger volumes, suction of up to 40 m³/h is available as an option. With 2-stage pumps, the end pressure can be reduced to as far as 2 x 10⁻³ mbar. The risk of either too high humidity or air concentration in the SF₆ gas compartment is therefore not a consideration.

With the models GFU08-W and GFU08-C, a gas cylinder scale is built in, which enables the exact determination of the amount of SF₆ gas filled in. Thus, the gas filling cart is an



SF₆ gas filling cart ¹⁾ Fig. left: Model GFU08-C
Fig. right: Model GFU08-B

¹⁾ The gas cylinder is not included in the delivery

ideal tool for using the mass-balance method in accordance with the IPCC directive for the preparation of emission reports.

The special, flat design of the weighing cell under the gas cylinder allows easy loading and unloading of the heavy cylinder by only one person.

Functionality

Prior to the first filling with SF₆ gas, the gas compartment, vented immediately before, is evacuated with the optionally available vacuum pump. The consequent isolation of the hoses for the vacuum and filling function ensures that, in no case, can SF₆ be released accidentally into the atmosphere. The cross-sections of the vacuum hoses have been optimised for each pump power (DN 8, DN 20). At the same time, the number of connecting parts has been kept small in order to minimise the risk of potential leakage. The better the final vacuum, the lower the concentration of unwanted

air and humidity. The variety of vacuum pumps selectable can meet the different customer requirements in terms of evacuation time and final vacuum. The high purity of the SF₆ gas filling is extremely important for the safe operation and low maintenance of SF₆ gas-filled systems.

For the SF₆ gas filling, the operator sets the required filling pressure. The filling hose is connected to the equipment via the self-closing valves. Before starting the filling process, the weigh-scale display is tared; thus the SF₆ gas fill-level can be easily read. With a dedicated button, toggling between gross and tared load is possible.

The optional integrated scale in the GFU08-W or GFU08-C model series has been designed for an accuracy of better than 0.02 %. The battery powered, 6-digit LED illuminated

LCD display is particularly suited for this mobile application, with its IP 65 ingress protection and maximum 75-hour battery life. It is possible to set the time delay after which it is automatically switched off when not in use. Furthermore, the backlighting can also be switched off, in order to increase the battery life. The charging cycle is indicated via a red/green charging light.

With the help of the self-storing ratchet strap, the gas cylinder can be easily secured onto the transport cart with maximum safety. The easy-to-use strapping to EN 12195-2 can apply a lashing force of up to 250 daN.

Through the balanced design and excellent running characteristics of the large wheels, the transport carts are particularly suited for use in indoor switchgear (optional pneumatic tyres for outdoor switchgear).

Specifications for model GFU08-B filling cart

Filling cart	
Gas cylinder connection	W 21.8 x 1/14" connector DIN 477 (others optional) Connecting hose with kink protection; length 0.8 m (31.5 ")
Max. inlet pressure	200 bar (2900 psi)
Max. outlet pressure	10 bar (145 psi)
Gas cylinder tie-down	<ul style="list-style-type: none"> ■ 2 x self-storing ratchet strap 25 mm x 1.8 m (1" x 70"); marked per EN 12195-2 for holding 250 daN each ■ optionally with chain
Filling hose	6 m (235") wire braided stainless steel hose with self sealing valves DN 8; other lengths optional
Rubber wheels	Solid rubber 250 x 60 mm (9.8" x 2.4"); Option: - Pneumatic tyres 260 x 85 mm (10.2" x 3.3") - Solid rubber, grey, non-marking or pneumatic tyres, puncture-proof
Dimensions	H x W x L: 1520 x 540 x 545 mm (60" x 21" x 21.5")
Weight	approx. 37 kg (81.6 lbs)

Options

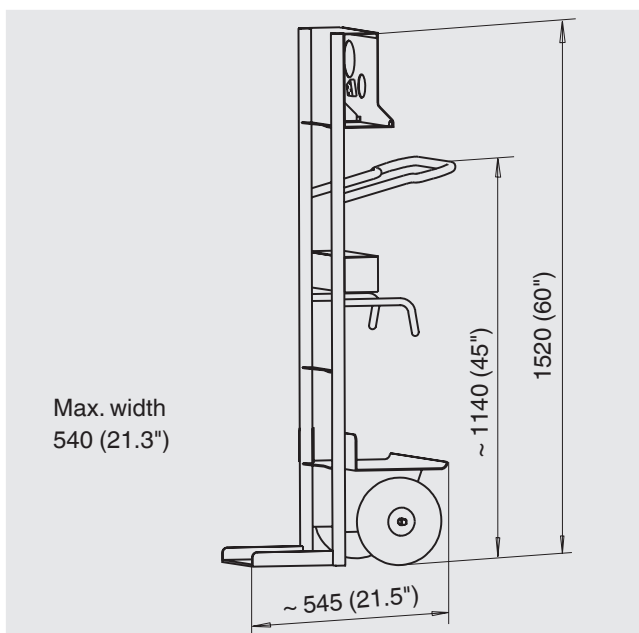
- Tool box, size 380 x 100 x 100 mm (15 x 3.9 x 3.9")
- Adjustable spanner, max. size 34 mm
- Adapters, DN 8 or DN 20



Filling cart model GFU08-B ¹⁾

1) The gas cylinder is not included in the delivery

Dimensions in mm (inch)



Specifications for model GFU08-W filling cart with scale

Filling cart	
Gas cylinder connection	W 21.8 x 1/14" connector DIN 477 (others optional) Connecting hose with kink protection; length 0.8 m (31.5 ")
Max. inlet pressure	200 bar (2900 psi)
Max. outlet pressure	10 bar (145 psi)
Gas cylinder tie-down	<ul style="list-style-type: none"> ■ 2 x self-storing ratchet strap 25 mm x 1.8 m (1" x 70"); marked per EN 12195-2 for holding 250 daN each ■ optionally with chain
Filling hose	6 m (235") wire braided stainless steel hose with self sealing valves DN 8; other lengths optional
Rubber wheels	Solid rubber 250 x 60 mm (9.8" x 2.4"); Option: - Pneumatic tyres 260 x 85 mm (10.2" x 3.3") - Solid rubber, grey, non-marking or pneumatic tyres, puncture-proof
Dimensions	H x W x L: 1520 x 540 x 634 mm (60" x 21" x 25")
Weight	approx. 37 kg (81.6 lbs)

Options

- Tool box, size 380 x 100 x 100 mm (15 x 3.9 x 3.9")
- Adjustable spanner, max. size 34 mm
- Adapters, DN 8 or DN 20

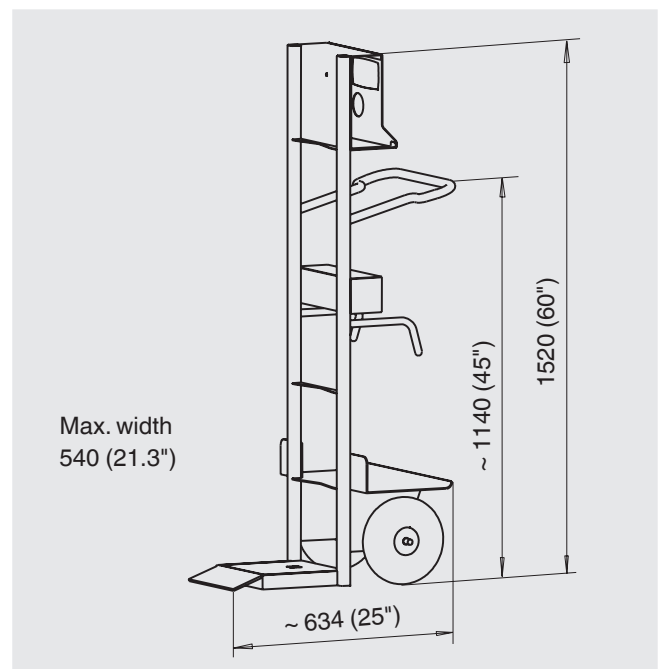
Scale	
Rated load	125 kg (275 lbs)
Maximum load	200 kg (440 lbs)
Accuracy	±25 g (±0.02 % of the rated load) optional ±10 g (±0.008 % of the rated load)
Digital indication	6 digit - 20 mm (0.8") high LCD display with LED backlight
Rechargeable battery	12 V battery pack (rechargeable NiMH)
Charger	AC 110 ... 240 V, 50/60 Hz
Operating environment	<ul style="list-style-type: none"> ■ Ambient temperature: -10 ... +50 °C (14 ... 122 °F) ■ Humidity: <90 % non-condensing, IP 65



Filling cart with scale model GFU08-W ¹⁾

1) The gas cylinder is not included in the delivery

Dimensions in mm (inch)



Specifications for model GFU08-E filling cart with vacuum pump

Filling cart	
Gas cylinder connection	W 21.8 x 1/14" connector DIN 477 (others optional) Connecting hose with kink protection; length 0.8 m (31.5")
Max. inlet pressure	200 bar (2900 psi)
Max. outlet pressure	10 bar (145 psi)
Gas cylinder tie-down	<ul style="list-style-type: none"> ■ 2 x self-storing ratchet strap 25 mm x 1.8 m (1" x 70"); marked per EN 12195-2 for holding 250 daN each ■ optionally with chain
Filling hose	6 m (235") wire braided stainless steel hose with self sealing valves DN 8; other lengths optional
Rubber wheels	Solid rubber 250 x 60 mm (9.8" x 2.4"); Option: - Pneumatic tyres 260 x 85 mm (10.2" x 3.3") - Solid rubber, grey, non-marking or pneumatic tyres, puncture-proof
Dimensions	H x W x L: 1520 x 540 x 545 mm (60" x 21" x 21.5")
Weight	approx. 37 kg (81.6 lbs)



Filling cart with vacuum pump model GFU08-E ¹⁾

1) The gas cylinder is not included in the delivery

Options

- Tool box, size 380 x 100 x 100 mm (15 x 3.9 x 3.9")
- Adjustable spanner, max. size 34 mm
- Adapters, DN 8 or DN 20

Vacuum pump				
Model	Working principle	Nominal pumping speed	Final partial pressure	Weight
S16 ¹⁾	Single stage rotary vane pump	16.0 m ³ /h (9.4 cfm)	≤ 1.0 mbar (≤ 0.75 Torr)	20.5 kg (45.3 lbs)
S25	Single stage rotary vane pump	26.0 m ³ /h (15.3 cfm)	≤ 0.5 mbar (≤ 0.4 Torr)	26.0 kg (57.4 lbs)
S40 ²⁾	Single stage rotary vane pump	44.0 m ³ /h (25.9 cfm)	≤ 0.5 mbar (≤ 0.4 Torr)	45.0 kg (99.3 lbs)
D16 ³⁾	Dual stage rotary vane pump	18.9 m ³ /h (11.1 cfm)	< 2.0 x 10 ⁻³ mbar (< 1.5 x 10 ⁻³ Torr)	26.0 kg (57.3 lbs)
D25	Dual stage rotary vane pump	29.5 m ³ /h (17.4 cfm)	< 2.0 x 10 ⁻³ mbar (< 1.5 x 10 ⁻³ Torr)	32.0 kg (70.6 lbs)

1) Standard

2) Model S40 only available with three-phase supply (3-ph)

3) Photo on page 1 shows D16 + with oil filter and oil return

Voltage supply

Standard: 230 V, 50/60 Hz, 1-ph AC;

option: 110 ... 120 V, 60 Hz 1-ph AC or

220 ... 240/380 ... 415 V, 50 Hz // 220 ... 266/380 ... 460 V, 60 Hz, 3-ph

Optional accessories for vacuum pumps

Gas ballast valve, oil filter

Pressure gauge

Robust pressure gauge -1 ... 0 bar, model 213.40 with forged brass case

Vacuum hose

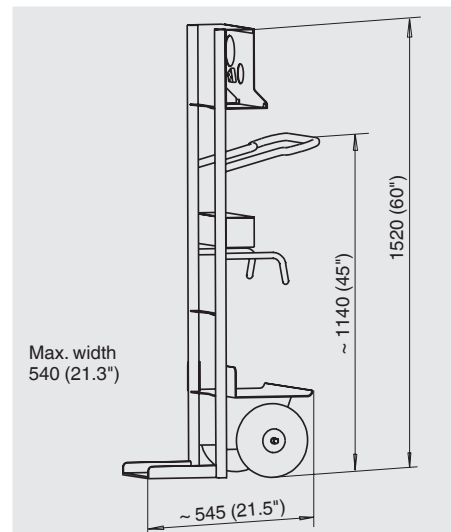
6 m (235") wire braided stainless steel hose DN 8;

with 2 self-sealing valves DN 8 female;

Optional: DN 20 hose and connections

other lengths optional

Dimensions in mm (inch)



Specifications for model GFU08-C filling cart with scale and vacuum pump

Filling cart	
Gas cylinder connection	W 21.8 x 1/14" connector DIN 477 (others optional) Connecting hose with kink protection; length 0.8 m (31.5 ")
Max. inlet pressure	200 bar (2900 psi)
Max. outlet pressure	10 bar (145 psi)
Gas cylinder tie-down	<ul style="list-style-type: none"> ■ 2 x self-storing ratchet strap 25 mm x 1.8 m (1" x 70"); marked per EN 12195-2 for holding 250 daN each ■ optionally with chain
Filling hose	6 m (235") wire braided stainless steel hose with self sealing valves DN 8; other lengths optional
Rubber wheels	Solid rubber 250 x 60 mm (9.8" x 2.4"); Option: - Pneumatic tyres 260 x 85 mm (10.2" x 3.3") - Solid rubber, grey, non-marking or pneumatic tyres, puncture-proof
Dimensions	H x W x L: 1520 x 540 x 634 mm (60" x 21" x 25")
Weight	approx. 37 kg (81.6 lbs)

Options

- Tool box, size 380 x 100 x 100 mm (15 x 3.9 x 3.9")
- Adjustable spanner, max. size 34 mm
- Adapters, DN 8 or DN 20

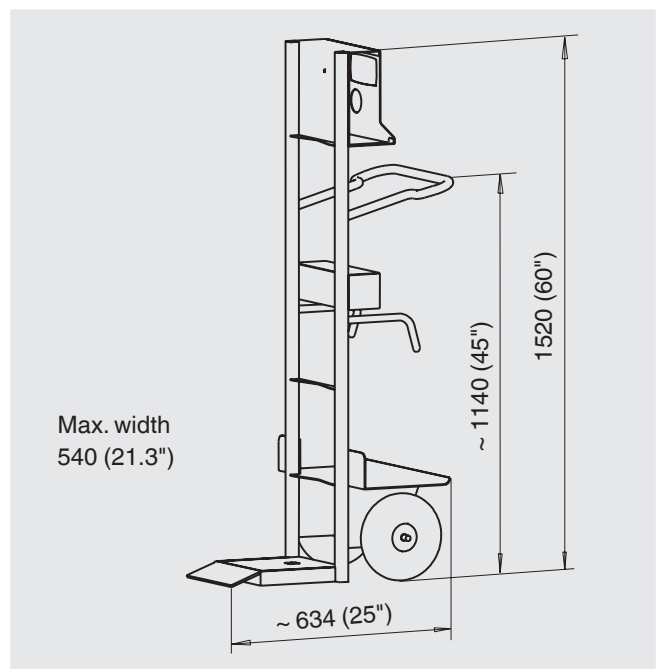
Scale	
Rated load	125 kg (275 lbs)
Maximum load	200 kg (440 lbs)
Accuracy	±25 g (±0.02 % of the rated load) optional ±10 g (±0.008 % of the rated load)
Digital indication	6 digit - 20 mm (0.8") high LCD display with LED backlight
Rechargeable battery	12 V battery pack (rechargeable NiMH)
Charger	AC 110 ... 240 V, 50/60 Hz
Operating environment	<ul style="list-style-type: none"> ■ Ambient temperature: -10 ... +50 °C (14 ... 122 °F) ■ Humidity: <90 % non-condensing, IP 65



Filling cart with scale and vacuum pump model GFU08-C ¹⁾

1) The gas cylinder is not included in the delivery

Dimensions in mm (inch)



Vacuum pump

Model	Working principle	Nominal pumping speed	Final partial pressure	Weight
S16 ¹⁾	Single stage rotary vane pump	16.0 m ³ /h (9.4 cfm)	≤ 1.0 mbar (≤ 0.75 Torr)	20.5 kg (45.3 lbs)
S25	Single stage rotary vane pump	26.0 m ³ /h (15.3 cfm)	≤ 0.5 mbar (≤ 0.4 Torr)	26.0 kg (57.4 lbs)
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D25	Dual stage rotary vane pump	29.5 m ³ /h (17.4 cfm)	< 2.0 x 10 ⁻³ mbar (< 1.5 x 10 ⁻³ Torr)	32.0 kg (70.6 lbs)

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2) Model S40 only available with three-phase supply (3-ph)

3) Photo on page 1 shows D16 + with oil filter and oil return

Voltage supply

Standard: 230 V, 50/60 Hz, 1-ph AC;

option: 110 ... 120 V, 60 Hz 1-ph AC or

220 ... 240/380 ... 415 V, 50 Hz // 220 ... 266/380 ... 460 V, 60 Hz, 3-ph

Optional accessories for vacuum pumps

Gas ballast valve, oil filter

Pressure gauge

Robust pressure gauge -1 ... 0 bar, model 213.40 with forged brass case

Vacuum hose

6 m (235") wire braided stainless steel hose DN 8;

with 2 self-sealing valves DN 8 female;

Optional: DN 20 hose and connections

other lengths optional

Ordering information

Selection of the model is sufficient. Please specify the options separately.

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We reserve the right to make modifications to the specifications and materials.

