



First in
Integrated SF₆
Regeneration Cycle



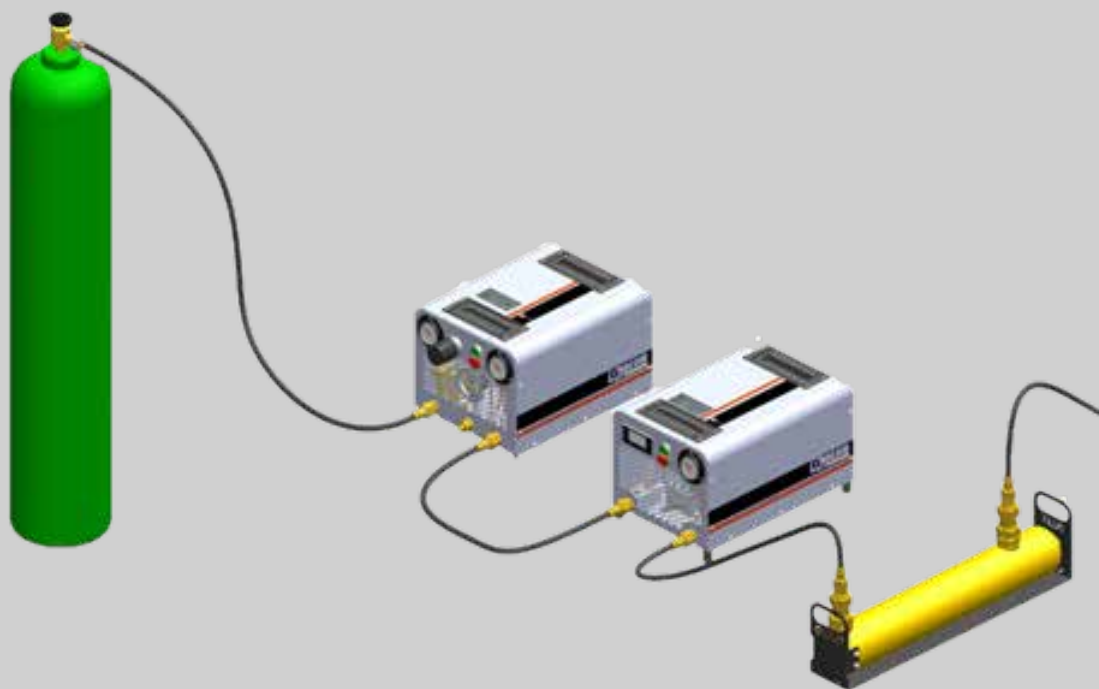
**SF₆ HANDLING
AND MANAGEMENT
SOLUTIONS**



RECOVERY AND TREATMENT



 PORTABLE LINE



▶ PORTABLE SF₆ COMPRESSOR

CAR109-02

DESCRIPTION

- **Oil-free compressor** in a portable module
- Compact and **easily transportable**
- All connections are **molecular sealed**
- In combination with CAR110-01 Portable SF₆ Vacuum allows **Recovery from the equipment up to a pressure of less than 1 mbar abs** (compliant with CEI EN62271-4) and Storage in a cylinder in a liquid state



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 500 mm - Width: 325 mm - Height: 280 mm

⚙️ WEIGHT: 25 kg

⚙️ OPERATING VOLTAGE:

- 220 - 240V 50/60 Hz
- 110V 60 Hz

STANDARD EQUIPMENT

Oil-free compressor: Nominal flow rate: 2,4 m³/h (50 Hz); 2,7 m³/h (60 Hz)

SF₆ Refilling pressure regulator: 0-10 bar

Particle filter

Safety valve 50 bar

Digital precision pressure gauge for Refilling

Folding handles

Operating manual



▶ **PORTABLE SF₆ COMPRESSOR**
CAR109-02

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (UNI EN ISO 9712 - SNT TC1A)
- 📄 Refilling Digital pressure gauge Calibration Certificate
- 📄 Safety valves Calibration Certificate
- 📄 Safety valves INAIL Certificate
- 📄 EC Conformity declaration

OPTIONAL ACCESSORIES

- ☆ **PKG101-01:** Alluminium transport case for CAR109-02
- ☆ **TBS101-02:** 2m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-03:** 5m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-04:** 10m Rubber hose DN8 with DN8 female coupling valves
- ☆ **VAL102-01:** Adapter kit DN8
- ☆ **ACC101-04:** Inlet Particle Filter



▶ PORTABLE SF₆ VACUUM CAR110-01

DESCRIPTION

- **Dry vacuum pump** in a portable module
- Compact and **easily transportable**
- All connections are **molecular sealed**
- In combination with CAR109-02 Portable SF₆ Compressor allows **Recovery from the equipment up to a pressure of less than 1 mbar abs** (compliant with CEI EN62271-4*) and Storage in a cylinder in a liquid state

* the standard CEI EN62271-4 requires the achievement of 5 mbar abs



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 500 mm - Width: 290 mm - Height: 250 mm

⚙️ WEIGHT: 19 kg

⚙️ OPERATING VOLTAGE: 220 - 240V 50/60 Hz

STANDARD EQUIPMENT

Dry vacuum pump: Nominal flow rate: 3 m³/h (50 Hz);
3,6 m³/h (60 Hz) - Final pressure: <1 mbar

Solenoid protection valve

Digital precision vacuumeter (0-100 mbar)

Digital precision vacuumeter display

Folding handles

Operating manual



▶ **PORTABLE SF₆ VACUUM**
CAR110-01

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

OPTIONAL ACCESSORIES

- ☆ **PKG101-02** Alluminium transport case for CAR110-01
- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female valves
- ☆ **TBS106-01**: Storage hose connection
- ☆ **VAL102-01**: Adapter kit DN8
- ☆ **ACC101-04**: Inlet Particle Filter



▶ PORTABLE AIR VACUUM CAR111-01

DESCRIPTION

- **15 m³/h vacuum pump**
- Ideal for: **Air and Nitrogen evacuation**
- Compact and **easily transportable**
- All connections are **molecular sealed**
- **Portable line:** same as CAR110-01 Portable SF₆ Vacuum and CAR109-02 Portable SF₆ Compressor and ACC101-01 SF₆ Integrated Filter



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 510 mm - Width: 350 mm - Height: 280 mm

⚙️ WEIGHT: 22 kg

⚙️ OPERATING VOLTAGE: 220 - 240V 50/60 Hz

STANDARD EQUIPMENT

Vacuum pump: Nominal flow rate: 15 m³/h (50 Hz); 18 m³/h (60 Hz) - Final pressure: <1 mbar

Solenoid valve DN8

Digital precision vacuumeter (0-100 mbar)

Digital precision vacuumeter display

5m DN8 rubber hose with DN8 coupling valves

Operating manual



▶ **PORTABLE AIR VACUUM**
CAR111-01

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

OPTIONAL ACCESSORIES

- ☆ **PKG101-01**: Alluminium transport case for CAR111-01
- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS106-01**: Storage hose connection
- ☆ **VAL102-01**: Adapter kit DN8
- ☆ **ACC101-04**: Inlet Particle Filter



SF₆ INTEGRATED FILTER

ACC101-01

DESCRIPTION

- Designed to **Recycle dirty SF₆** gas
- **Accurately remove** moisture and SF₆ gas decomposition products such as SO₂, HF, H₂S
- Certified in accordance with the Pressure Equipment Directive (**PED 2014/68/EC**)
- More units can be aligned in parallel or in series for **improved efficiency**



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 740 mm - Width: 120 mm - Height: 210 mm

⚙️ WEIGHT: 20 kg

⚙️ MAXIMUM PRESSURE: 50 bar

⚙️ COLORS: Yellow: RAL 1016 matt, Black: RAL 9005 matt

STANDARD EQUIPMENT

DN20 Coupling Valves

Particulate Filter

Filter Products for moisture and decomposed SF₆ gas

User and maintenance manual



▶ **SF₆ INTEGRATED FILTER**
ACC101-01

OPTIONAL ACCESSORIES

- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves
- ☆ **VAL102-01**: Adapter kit DN8
- ☆ **TBS102-01**: 5m Rubber hose DN20 with DN8 female valves
- ☆ **TBS102-02**: 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03**: 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01**: Adapter kit DN20

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

PROVIDED DOCUMENTS

- 📄 Operating Manual
- 📄 SF₆ safety data sheet





SERVICE CARTS

▶ POINT

CAR108-01

DESCRIPTION

- **4 simultaneous functions in one cart:** SF₆ Recovery, Air Vacuum, SF₆ Refill and Filtering
- **Recycling in autonomy:** the integrated Filter allows the reduction of humidity levels and the elimination of gases resulting from SF₆ decomposition
- The amount of recovered gas is monitored through a **Certified integrated weighing system**
- **Maximum compactness**
- Intuitive interface, **easy to use**
- All connections are **molecular sealed**



FUNCTIONS

- ☑ SF₆ gas **Recovery** from the equipment and **Storage** in cylinders in liquid state
Final attainable absolute pressure < 1 mbar abs (in compliance with CEI EN62271-4)
- ☑ **Air evacuation**
Final attainable absolute pressure < 1 mbar abs
- ☑ SF₆ gas **Refilling** from a cylinder at adjustable pressure
- ☑ **Certified Weighing System** for cylinders both in Recovery and in Refill (5; 10; 20; 40L cylinders)
- ☑ SF₆ gas **Filtration and moisture abatement** in Recovery phase
- ☑ SF₆ gas **Filtration and particulate abatement** in Recovery phase



► **POINT**
CAR108-01

TECHNICAL SPECIFICATIONS

⊗ DIMENSIONS: Length: 680 mm (wheels) - Length: 550 mm (chassis) - Width: 930 mm - Height 1350 mm

⊗ WEIGHT: 240 kg

⊗ POWER SUPPLY: 220 - 240V 50/60 Hz

⊗ COLOURS: Yellow: RAL1016 - Black: RAL9005

SF₆ Oil Free Compressor

⊗ NOMINAL FLOW RATE: 2,4 m³/h (50 Hz); 2,7 m³/h (60Hz)

⊗ MAXIMUM DISCHARGE PRESSURE: 50 bar

SF₆ Dry Suction Pump

⊗ NOMINAL FLOW RATE: 3 m³/h (50 Hz); 3,6 m³/h (60 Hz)

⊗ ACHIEVABLE FINAL PRESSURE: < 1 mbar

Air Vacuum Pump

⊗ NOMINAL FLOW RATE: 15 m³/h

⊗ ACHIEVABLE FINAL PRESSURE: < 1 mbar

STANDARD EQUIPMENT

SF₆ oil free compressor

SF₆ dry suction pump

Air vacuum pump

1 moisture filter

2 particulate filters

Digital precision vacuumeter for vacuum gas measurement (0-100 mbar)

Digital precision vacuumeter for air vacuum measurement (0-100 mbar)

2 LCD displays for visualising measured parameters

Inlet and outlet analogue pressure gauges

DN20-cylinder connection adapter to discharge the high pressure hose

DN8 Male - DN20 Female adapters

Digital pressure gauge 0 ÷ 11 bar abs measuring real and temperature compensated pressure + atmospheric temperature

180 kg load cell (accuracy ±10 g)

LCD weight display

5 m DN20 hose with 2 molecularly sealed DN20 female valves

5 m DN8 hose with 2 molecularly sealed DN20 female valves

5 m DN8 hose with adapters W21,8x1/14" - W1"

5 m DN8 hose with adapters W21,8x1/14" - W1"



► **POINT**
CAR108-01

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (UNI EN ISO 9712 - SNT TC1A)
- 📄 Digital refilling pressure gauge Calibration Certificate
- 📄 Safety valves Calibration Certificate
- 📄 Safety valves INAIL Certificate

DOCUMENTATION PROVIDED

- 📄 Operating manual
- 📄 SF₆ gas safety data sheet

OPTIONAL ACCESSORIES

- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-05**: 20m Rubber hose DN8 with DN8 female valves
- ☆ **VAL102-01**: Adapter kit DN8
- ☆ **TBS102-01**: 5m Rubber hose DN20 with DN8 female valves
- ☆ **TBS102-02**: 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03**: 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01**: Adapter kit DN20
- ☆ **TBS106-01**: Storage hose connection
- ☆ **COV101-01**: Waterproof cover



▶ BASIC

CAR101-XX, CAR102-XX, CAR104-XX,
CAR114-XX, CAR115-XX

CAR101-01	Basic Classic
CAR101-02	Basic Classic + Vacuum
CAR114-01	Basic Classic + Refilling
CAR114-02	Basic Classic + Refilling + Vacuum
CAR101-03	Basic Classic + Vacuum Plus
CAR114-03	Basic Classic + Refilling + Vacuum Plus
CAR102-01	Basic High Performance
CAR102-02	Basic High Performance + Vacuum
CAR115-01	Basic High Performance + Refilling
CAR115-02	Basic High Performance + Refilling + Vacuum
CAR102-03	Basic High Performance + Vacuum Plus
CAR115-03	Basic High Performance + Refilling + Vacuum Plus
CAR104-01	Basic Hyper Performance
CAR104-02	Basic Hyper Performance + Vacuum
CAR104-03	Basic Hyper Performance + Vacuum Plus



► BASIC

CAR101-XX, CAR102-XX, CAR104-XX, CAR114-XX, CAR115-XX

DESCRIPTION

- Ideal for: **high and medium voltage AIS and particle accelerators**
- **Compact** design
- Intuitive interface, **easy to use**

Functions

- **Recovery** from an equipment up to a pressure of less than 1 mbar abs (in compliance with CEI EN62271-4)
- **Recycling in autonomy:** the integrated filter allows the reduction of humidity levels and the elimination of gases resulting from the SF₆ decomposition
- **Vacuum versions:** air evacuation up to a pressure of less than 1 mbar abs
- **Refilling versions:** filling of compartment with SF₆ gas at adjustable pressure



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 1200 mm - Width: 700 mm - Height: 1550 mm

⚙️ POWER SUPPLY: 400V 50/60Hz three-phase

⚙️ COLOURS: Yellow: RAL 1016 matt - Black: RAL 9005 matt

CODE	WEIGHT (kg)
CAR101-01 CAR102-01	340
CAR101-02 CAR101-03 CAR102-02 CAR102-03 CAR114-01 CAR115-01	360
CAR114-02 CAR114-03 CAR115-02 CAR115-03	380
CAR104-01	400
CAR104-02 CAR104-03	420

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**FOR FURTHER
INFORMATION
CONTACT US**



► BASIC

CAR101-XX, CAR102-XX, CAR104-XX, CAR114-XX, CAR115-XX

STANDARD EQUIPMENT

Moisture filter

Particulate filter

2" LCD display

Precision vacuum meter for vacuum gas measurement (0-100mbar)

Inlet and outlet manometers

5 m long DN20 hose with 2 couplings DN20 female valves

DN20-W21,8x1/14" adapter for the cylinder hose's discharge in the machine

Flexible 5 m long DN8 hose with W21,8x1/14" adapter for cylinder connection

Dry compressor: see below

Dry vacuum compressor: see below

Air vacuum pump: see below

Vacuum and vacuum plus versions: Precision vacuum gauge for air vacuum measurement (0-100mbar)

Refilling versions: Pressure reducer 1 ÷ 17 bar for filling compartments with SF₆ gas

Refilling versions: Digital pressure manometer 0 ÷ 11 bar abs measuring real and temperature-compensated pressure + atmospheric temperature

⚙️ Dry compressor

Code	Nominal Flow Rate	Discharge Pressure (bar)
CAR101-01	4.5 Nm ³ /h	50
CAR101-02	4.5 Nm ³ /h	50
CAR101-03	4.5 Nm ³ /h	50
CAR114-01	4.5 Nm ³ /h	50
CAR114-02	4.5 Nm ³ /h	50
CAR114-03	4.5 Nm ³ /h	50
CAR102-01	9 Nm ³ /h	50
CAR102-02	9 Nm ³ /h	50
CAR102-03	9 Nm ³ /h	50
CAR115-01	9 Nm ³ /h	50
CAR115-02	9 Nm ³ /h	50
CAR115-03	9 Nm ³ /h	50
CAR104-01	13.4 Nm ³ /h	50
CAR104-02	13.4 Nm ³ /h	50
CAR104-03	13.4 Nm ³ /h	50



► **BASIC**

CAR101-XX, CAR102-XX, CAR104-XX, CAR114-XX, CAR115-XX

⚙️ **Dry vacuum compressor**

Code	Nominal Flow Rate (Nm ³ /h)	Final Pressure (mbar)
CAR101-01	6	<1
CAR101-02	6	<1
CAR101-03	6	<1
CAR114-01	6	<1
CAR114-02	6	<1
CAR114-03	6	<1
CAR102-01	15	<1
CAR102-02	15	<1
CAR102-03	15	<1
CAR104-01	15	<1
CAR104-02	15	<1
CAR104-03	15	<1
CAR115-01	15	<1
CAR115-02	15	<1
CAR115-03	15	<1



▶ **BASIC**

CAR101-XX, CAR102-XX, CAR104-XX, CAR114-XX, CAR115-XX

⚙️ **Air Evacuation Pump (with Solenoid Valve)**

Code	Nominal Flow Rate (Nm ³ /h)	Final Pressure (mbar)
CAR101-01	/	/
CAR101-02	25	< 1
CAR101-03	40	< 1
CAR102-01	/	/
CAR102-02	25	< 1
CAR102-03	40	< 1
CAR104-01	/	/
CAR104-02	25	< 1
CAR104-03	40	< 1
CAR114-01	/	/
CAR114-02	25	< 1
CAR114-03	40	< 1
CAR115-01	/	/
CAR115-02	25	< 1
CAR115-03	40	< 1




BASIC

CAR101-XX, CAR102-XX, CAR104-XX, CAR114-XX, CAR115-XX

OPTIONAL ACCESSORIES

- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female valves
- ☆ **VAL102-01**: Adapter kit DN8
- ☆ **TBS102-01**: 5m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-02**: 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03**: 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01**: Adapter kit DN20
- ☆ **TBS106-01**: Storage hose connection
- ☆ **COV101-01**: Waterproof cover
- ☆ **SCA101-01_B_300**: Scale

DOCUMENTATION PROVIDED Operating manual SF₆ gas safety data sheet**CERTIFICATES ISSUED** Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A) Safety valves INAIL Certificate Safety valves Calibration Certificate Digital pressure gauge Calibration Certificate

▶ EASY

CAR103-01

DESCRIPTION

- Ideal for: **Big volume GIS and Particle Accelerators**
- **4 functions in one cart:** SF₆ Recovery, Air Vacuum, SF₆ Refill and Filtering
- **Recycling in autonomy:** the integrated Filter allows the reduction of humidity levels and the elimination of gases resulting from the SF₆ decomposition
- **Compact design**
- Completely **remotable**
- Intuitive interface, **easy to use**
- **Safe transport:** complete and automatic emptying of the circuit guaranteeing an internal pressure of less than 0.5 bar according to **PED 2014/68/EC**



FUNCTIONS

- ☑ SF₆ gas **Recovery** from equipment
Final attainable absolute pressure < 1 mbar abs.
- ☑ **Air evacuation** from equipment
Final attainable absolute pressure < 1 mbar abs.
- ☑ SF₆ gas **Refilling** from a cylinder
- ☑ SF₆ gas **Filtration and moisture abatement** both in Recovery and Refilling phase
- ☑ SF₆ gas **Filtration and particulate abatement** both in Recovery and Refilling phase
- ☑ Fully automated procedure to **reduce the pressure of the machine circuit.**
The attainable emptying pressure is adapted to the Regulations ensuring safe transport
- ☑ Fully automated procedure to **restore the standard machine circuit pressure** after transport
- ☑ **Moisture measurement** of Recovered and Refilled SF₆ gas
- ☑ Automated **Cylinder Heating** to avoid the freezing effect of the gas expansion
- ☑ **Certified Weighing System**
- ☑ **Report generation** to track humidity, temperature and pressure data
- ☑ **Remotely Controlled** in order to keep the operator away from hazardous areas



▶ **EASY**
CAR103-01

TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 1300 mm - Width: 800 mm - Height: 1300 mm

⚙️ WEIGHT: 600 kg

⚙️ POWER SUPPLY: 380 - 420 V / 50/60 Hz three-phase

Air vacuum pump

⚙️ FINAL PRESSURE: < 1 mbar

⚙️ NOMINAL FLOW RATE: 40 Nm³/h

SF₆ dry gas vacuum pump

⚙️ FINAL PRESSURE < 1 mbar

⚙️ NOMINAL FLOW RATE: 15 Nm³/h

SF₆ dry compressor

⚙️ NOMINAL FLOW RATE: 13.5 Nm³/h

⚙️ MAX PRESSURE: 50 bar

STANDARD EQUIPMENT

Air vacuum pump 40 Nm³/h

SF₆ gas vacuum pump 15 Nm³/h

SF₆ dry compressor 13.5 Nm³/h

2 humidity filters

1 particulate filter

Thermal blanket

12" digital display

Emptying cylinder for transport

Cylinder scale (0 - 140 kg; ±10 g)

Pressure, humidity and temperature sensor

Precision vacuumeter 0-100 mbar

5 m DN20 hose with DN20 connection valves

5 m DN8 hose with DN20 coupling valve and SF₆ W 21.7 x 1/14" cylinder connection

Solid elastic rubber wheels with swivel plate support and brake

Colours: Yellow: RAL 1016 - Black: RAL 9005



▶ **EASY**
CAR103-01

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (UNI EN ISO 9712 - SNT TC1A)
- 📄 EC Declaration of conformity
- 📄 Safety valves INAIL Certificate
- 📄 Calibration Certificate of weighing system issued by an accredited metrology laboratory

DOCUMENTATION PROVIDED

- 📄 Operating manual
- 📄 SF₆ gas safety Data Sheet



SYNERGIC

CAR106-XX, CAR105-XX

CAR106-04	Synergic Classic + Vacuum 40
CAR106-04-S	Synergic Classic + Vacuum 40 + Storage 300L
CAR106-03	Synergic Classic + Vacuum 60
CAR106-03-S	Synergic Classic + Vacuum 60 + Storage 300L
CAR106-02	Synergic Classic + Vacuum 100
CAR106-02-S	Synergic Classic + Vacuum 100 + Storage 300L
CAR106-01	Synergic Classic + Vacuum 200
CAR106-01-S	Synergic Classic + Vacuum 200 + Storage 300L
CAR105-04	Synergic High Performance + Vacuum 40
CAR105-04-S	Synergic High Performance + Vacuum 40 + Storage 300L
CAR105-03	Synergic High Performance + Vacuum 60
CAR105-03-S	Synergic High Performance + Vacuum 60 + Storage 300L
CAR105-02	Synergic High Performance + Vacuum 100
CAR105-02-S	Synergic High Performance + Vacuum 100 + Storage 300L
CAR105-01	Synergic High Performance + Vacuum 200
CAR105-01-S	Synergic High Performance + Vacuum 200 + Storage 300L



► **SYNERGIC**
CAR106-XX, CAR105-XX

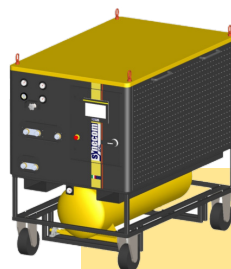
DESCRIPTION

- Ideal for: **Big volume GIS and Particles accelerators**
- **4 simultaneous functions in one cart:** Air Vacuum, Recovery and Refill of SF₆ gas and Filtering
- Available in **multiple versions** to meet all sizes equipment
- **Recycling in autonomy:** the integrated filter allows the reduction of humidity levels and the elimination of gases resulting from the decomposition of SF₆
- **Compact design**
- Intuitive interface, **easy to use**
- All connections are **molecular sealed**



Storage version:

- Automatic functioning via 10" touch-screen
- Smartphone and tablet remote control



FUNCTIONS

- ☑ SF₆ gas **Recovery** and **Storage** in cylinder in liquid state up to a pressure of 50bar.
Final attainable absolute pressure in compartment < 1 mbar abs (in compliance with CEI EN62271-4*)
- ☑ **Storage version:** SF₆ gas **Recovery** and **Storage** in the connected tank in a liquid state up to a pressure of 50bar.
Final attainable absolute pressure < 1 mbar abs (in compliance with CEI EN62271-4*)
- ☑ **Air Evacuation**
Final attainable absolute pressure in compartment < 1 mbar abs
- ☑ SF₆ gas **Refilling** at adjustable pressure from a cylinder
- ☑ **Storage version:** SF₆ gas **Refilling** at adjustable pressure directly from the connected tank
- ☑ SF₆ gas **Filtration and moisture abatement** both in Recovery and Refilling phase
- ☑ SF₆ gas **Filtration and particulate abatement** both in Recovery and Refilling phase
- ☑ **Measurement of humidity** of recovered and released gas

* the standard CEI EN62271-4 requires the achievement of 5 mbar abs

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**FOR FURTHER
INFORMATION
CONTACT US**



► **SYNERGIC**
CAR106-XX, CAR105-XX

TECNICAL SPECIFICATIONS

⚙️ **DIMENSIONS:** Length: 1420 mm - Width: 995 mm - Height: 1595 mm

STORAGE VERSION DIMENSIONS: Length: 2120 mm - Width: 1290 mm - Height: 1845 mm

⚙️ **WEIGHT:** 550 kg

STORAGE VERSION WEIGHT: 1500 kg

⚙️ **POWER SUPPLY:** 400 V - 50 / 60 Hz three-phase

⚙️ **COLORS:** Yellow: RAL1016 - Black: RAL9005

⚙️ SF₆ Dry compressor

Code	Nominal Flow Rate	Discharge Pressure (bar)
CAR106-XX	13,2 Nm ³ /h	50
CAR105-XX	22,3 Nm ³ /h	50

⚙️ SF₆ Dry Vacuum Pump

Code	Nominal Flow Rate	Final attainable Pressure
CAR106-XX	18 Nm ³ /h	< 1mbar
CAR105-XX	35 Nm ³ /h	< 1mbar

⚙️ Air Vacuum Pump

Code	Nominal Flow Rate	Final attainable Pressure
CARXXX-04	40 Nm ³ /h	< 1mbar
CARXXX-03	60 Nm ³ /h	< 1mbar
CARXXX-02	100 Nm ³ /h	< 1mbar
CARXXX-01	200 Nm ³ /h	< 1mbar



► **SYNERGIC**
CAR106-XX, CAR105-XX

STANDARD EQUIPMENT

SF₆ Dry compressor

SF₆ Dry vacuum pump

Air vacuum Pump

2 moisture and acid substance filters (recovery and refilling)

4 particulate filters (recovery and refilling)

7" LCD display

Moisture measurement sensor for recovered gas

Precision vacuumeter for vacuum gas measurement (0-100mbar)

Precision vacuumeter for air vacuum measurement (0-100mbar)

Input and output analogue pressure gauges

Pressure reducer 1 ÷ 17 bar for filling compartments with SF₆ gas

Digital pressure manometer 0 ÷ 11 bar abs with temperature measurement and double measurement of real and compensated pressure, for refilling

5 m long DN20 flexible hose with 2 coupling DN20 female valves

5 m long DN8 flexible hose with adapters W21,8x1/14" for connection to the cylinder and DN20 for connection to the machine

Only on Storage version:

- 300L capacity tank (max pressure 50bar)
- Heater in the filling phase
- 10" LCD display

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate (UNI EN ISO 9712 - SNT TC1A)

📄 Refilling Digital pressure gauge Calibration Certificate

📄 Safety valves Calibration Certificate

📄 Safety valves INAIL Certificate

DOCUMENTATION PROVIDED

📄 Operating manual

📄 SF₆ gas safety data sheet



▶ **SYNERGIC**
CAR106-XX, CAR105-XX

OPTIONAL ACCESSORIES

- ☆ **COP101-01**: Thermocover for cylinders
- ☆ **LEK102-02**: SF₆ sniffer
- ☆ **LEK103-03**: SF₆ Leak Detector
- ☆ **TBS102-01**: 5m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-02**: 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03**: 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01**: Adapter kit DN20
- ☆ **COV101-01**: Waterproof cover
- ☆ **SCA101-01_B_300**: Scale



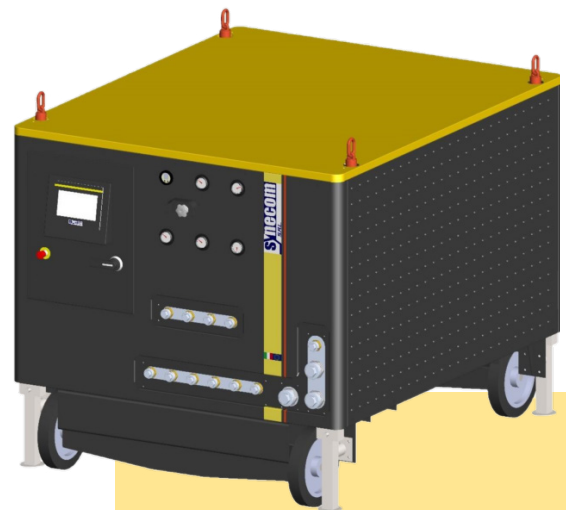
▶ GIANT

CAR116-XX, CAR117-XX

CAR116-01	Giant Classic + Vacuum 100
CAR116-02	Giant Classic + Vacuum 200
CAR117-01	Giant High Performance + Vacuum 100
CAR117-02	Giant High Performance + Vacuum 200

DESCRIPTION

- Ideal for: **Big volumes GIS and Particles accelerators**
- **4 simultaneous functions in one cart:** Air Vacuum, Recovery, Refill and Filtering of SF₆ gas
- **Recovery** of SF₆ gas from equipment down to **1 mbar abs pressure** (in compliance with CEI EN62271-4*)
- **Storage** in cylinder in liquid state **up to 50 bar pressure**
- **Recycling in autonomy:** the integrated filter allows the reduction of humidity levels and the elimination of gases resulting from SF₆ decomposition



FUNCTIONS

- ☑ SF₆ gas **Recovery** and **storage** in cylinder in a liquid state up to a pressure of 50 bar.
Final attainable absolute pressure in compartment < 1 mbar abs (in compliance with CEI EN62271-4*)
- ☑ **Air evacuation**
Final attainable absolute pressure in compartment < 1 mbar abs
- ☑ SF₆ gas **Refilling** from a cylinder at adjustable pressure
- ☑ SF₆ gas **Filtration and moisture abatement** both in Recovery and Refilling phase
- ☑ SF₆ gas **Filtration and particulate abatement** both in Recovery and Refilling phase
- ☑ **Measurement of humidity** of SF₆ gas recovered and refilled

* the standard CEI EN62271-4 requires the achievement of 5 mbar abs

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▶ **GIANT**

CAR116-XX, CAR117-XX

TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 2210 mm - Width: 1900 mm - Height: 1710 mm

⚙️ POWER SUPPLY: 400 V - 50 / 60 Hz three-phase

⚙️ COLOUR: Yellow: RAL1016 - Black: RAL9005

⚙️ Weight:

Code	Kg
CAR116-01	2150
CAR116-02	2250
CAR117-01	2400
CAR117-02	2500

⚙️ Dry SF₆ Compressor

Code	Nominal Flow Rate	Maximum discharge pressure
CAR116-XX	34 Nm ³ /h	50 bar
CAR117-XX	84 Nm ³ /h	50 bar

⚙️ Dry SF₆ Suction Pump

Code	Nominal Flow Rate	Final pressure achievable
CAR116-XX	40 Nm ³ /h	< 1mbar
CAR117-XX	90 Nm ³ /h	< 1mbar

⚙️ Air vacuum pump

Code	Nominal Flow Rate	Final pressure achievable
CAR116-01, CAR117-01	100 Nm ³ /h	< 1mbar
CAR116-02, CAR117-02	200 Nm ³ /h	< 1mbar



▶ **GIANT**
CAR116-XX, CAR117-XX

STANDARD EQUIPMENT

Dry SF₆ compressor

Dry SF₆ suction pump

Air vacuum pump

6 moisture filters (recovery and refilling)

4 particulate filters (recovery and refilling)

10" LCD display

Moisture measurement sensor for recovered SF₆ gas

Precision vacuumeter for vacuum gas measurement (0-100mbar)

Precision vacuumeter for air vacuum measurement (0-100mbar)

Input and output analogue pressure gauges

Pressure reducer 1 ÷ 17 bar for filling compartments with SF₆ gas

Digital precision manometer 0 ÷ 11 bar abs with temperature measurement and double measurement of real and compensated pressure, for filling of compartment

Heater placed in the filling circuit

N°3 DN40 input connections

N°9 DN20 input connections

10 m DN40 flexible hose with n°2 DN40 female coupling valves

10 m DN20 flexible hose with n°2 DN20 female coupling valves

5 m DN8 flexible hose with adapters W21,8x1/14" for connecting the cylinder and DN20 adapter for connecting the machine

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate (UNI EN ISO 9712 - SNT TC1A)

📄 Refilling Digital pressure gauge Calibration Certificate

📄 Safety valves Calibration Certificate

📄 Safety valves INAIL Certificate

DOCUMENTATION PROVIDED

📄 Operating manual

📄 SF₆ gas safety data sheet



▶ ACTIVE

ACC101-03

DESCRIPTION

- Ideal for: full **Recycling** of SF₆ gas contained in **all equipment sizes**
- Designed to **Dehumidify, Dedust and Eliminate the acid substances**
- Full gas Recycle according to IEC standards both **when the plan is operating and while shut down**
- **Plug & Play** filter substitution



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 1200 mm - Width: 700 mm - Height: 1560 mm

⚙️ WEIGHT: 530 kg

⚙️ COLOURS: Yellow: matt RAL 1016 - Black: matt RAL 9005

⚙️ POWER SUPPLY: 400 V three-phase

FUNCTIONS

5 functions to treat SF₆ from all equipment sizes:

- ☑️ 0: Stand-by
- ☑️ 2: Intermittence: AIS 132-245 kV (100-300 l)
- ☑️ 4: Intermittence: AIS 245-420 kV (300-600 l)
- ☑️ 6: Intermittence: GIS 1 access valve (>600 l)
- ☑️ 8: Recirculation: GIS 2 access valves (>600 l)
- ☑️ 10: Ready for transport

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▶ **ACTIVE**
ACC101-03

SYNECOM INTEGRATED FILTER SPECIFICATIONS

- Certified according to the Pressure Equipment Directive (**PED 2014/68/EC**)
- **Plug & Play:** Thanks to coupling valves installed both at the inlet and at the outlet of the vessel, it is possible to replace the filter by disassembling it directly from the System, even during operation, without the need to remove the gas inside it.

- ⚙️ Dimensions: Height: 700 mm - Diagonal 120 mm
- ⚙️ Weight: 20 kg
- ⚙️ Integrated filter (dehumidification filter + particulate filter)
- ⚙️ Inlet and outlet molecular seal valves
- ⚙️ Handles
- ⚙️ Colour: yellow RAL 1016



STANDARD EQUIPMENT

Integrated filters (dehumidification + particulate)

Volumetric compressor 4.5 Nm³/h - 9 Nm³/h oil free

Parameter display with time graph such as: Pressure - Compensated pressure - Temperature - Humidity ppm - Humidity dew point

Multiparameters transmitter both in inlet and in outlet from the machine

1 inlet with coupling valve DN20

1 outlet with coupling valve DN20

2 Analog manometers for inlet and outlet

2 DN20 hoses with coupling valves on both ends L = 5 m

Vulcanized rubber wheels with swivel plate support and brake

Predisposition for lifting by forklift or overhead crane



▶ **ACTIVE**
ACC101-03

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

📄 EC Declaration of conformity

📄 Safety valve INAIL Certificate

DOCUMENTATION PROVIDED

📄 Operating manual

📄 SF₆ gas safety Data Sheet



SF₆ INTEGRATED FILTER

ACC101-01

DESCRIPTION

- Designed to **Recycle dirty SF₆ gas**
- **Accurately remove** moisture and SF₆ gas decomposition products such as SO₂, HF, H₂S
- Certified in accordance with the Pressure Equipment Directive (**PED 2014/68/EC**)
- More units can be aligned in parallel or in series for **improved efficiency**



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 740 mm - Width: 120 mm - Height: 210 mm

⚙️ WEIGHT: 20 kg

⚙️ MAXIMUM PRESSURE: 50 bar

⚙️ COLORS: Yellow: RAL 1016 matt, Black: RAL 9005 matt

STANDARD EQUIPMENT

DN20 Coupling Valves

Particulate Filter

Filter Products for moisture and decomposed SF₆ gas

User and maintenance manual



▶ **SF₆ INTEGRATED FILTER**
ACC101-01

OPTIONAL ACCESSORIES

- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves
- ☆ **VAL102-01**: Adapter kit DN8
- ☆ **TBS102-01**: 5m Rubber hose DN20 with DN8 female valves
- ☆ **TBS102-02**: 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03**: 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01**: Adapter kit DN20

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

PROVIDED DOCUMENTS

- 📄 Operating Manual
- 📄 SF₆ safety data sheet





SF₆ GAS REFILLING

▶ FLOW V1

REF102-02

DESCRIPTION

- **Certified weighing system** for easy data Reporting required by EU 2024/573
- Internal system for Refilling in **total safety** for the operator, the environment and the equipment
- **Compact** design for smooth and safe handling of SF₆ gas cylinders
- **Bluetooth** interface to exchange data between the electronic scales and the computer in a simple and fast way
- All connections are **molecular sealed**: the absence of SF₆ gas leaks is guaranteed and certified by Helium and SF₆ leak tests



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 605 mm - Width: 520 mm - Height: 1425 mm

⚙️ PLATFORM DIMENSIONS: Length: 300 mm - Width: 300 mm

⚙️ WEIGHT: 39,8 kg

⚙️ CHASSIS MATERIALS: Aluminum - Steel

⚙️ COLOURS: Body: unpainted alluminum - Black: RAL 1016 matt, Black (steel parts of the frame): RAL 9005 matt



► **FLOW V1**
REF102-02

STANDARD EQUIPMENT

Stainless steel ball valve with oval handwheel in green colour.

SF₆ bottle connection W21,8 x 1/14" DIN 477 N°6

Pressure reducer 1.5 - 15 bar

5 m long rubber hose DN8 with coupling valve DN8 on both ends

Backlit LCD display IP68 lb/kg with integrated battery charger 220÷230 V, 50/60 Hz

Bottle scale 0 - 130 kg (sensitivity ±10 g)

Bluetooth connection

5 bar safety valve installed on DN8 valve

8 bar safety valve installed on DN8 valve

Inlet analog manometer 0 - 60 bar

Digital Outlet precision manometer 0 - 11 bar abs

Rubber wheels 260x85 mm

DN20-DN8 coupling valve adapter

Cylinder fixing chain

Roller wrenches

OPTIONAL ACCESSORIES

☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves

☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves

☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves

☆ **VAL102-01**: Adapter kit DN8

CERTIFICATES ISSUED

📄 Calibration certificate of the weighing system issued by an accredited metrology laboratory

📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

📄 Digital precision pressure gauge Calibration Certificate

📄 Safety valve Calibration Certificate

📄 Safety valve INAIL Certificate

PROVIDED DOCUMENTS

📄 Operating Manual

📄 SF₆ safety data sheet



▶ SF₆ REFILLING KIT REF101-XX


DESCRIPTION


- Ideal for: **Refilling** the equipment directly from high-pressure cylinder
- The SF₆ pressure in the compartment can be easily **adjusted using the knob** on the pressure reducer
- All connections are **molecular sealed**: the absence of SF₆ gas leaks is guaranteed and certified by Helium and SF₆ leak tests
- Available in **5 different versions** to meet all equipment needs



REF101-01	SF ₆ Refilling Kit Low
REF101-02	SF ₆ Refilling Kit Classic
REF101-03	SF ₆ Refilling Kit Medium
REF101-04	SF ₆ Refilling Kit Standard
REF101-05	SF ₆ Refilling Kit Full

PROVIDED DOCUMENTS

 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

 Operating manual

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► **SF₆ REFILLING KIT**
REF101-XX

TECHNICAL SPECIFICATIONS

KIT:	SF ₆ Refilling Kit Low SF ₆ Refilling Kit Classic SF ₆ Refilling Kit Medium	SF ₆ Refilling Kit Standard SF ₆ Refilling Kit Full
------	--	--

Length (mm)	460	555
Width (mm)	360	428
Height (mm)	180	211
Weight (kg)	9 ÷ 12	15

STANDARD EQUIPMENT

Analog manometer 0 ÷ 60 bar at pressure reducer inlet (high pressure)

Analog manometer 0 ÷ 12 bar at pressure reducer outlet (low pressure)¹

Digital precision manometer 0 ÷ 11 bar abs²

Cylinder connection SF₆ W 21.8 x 1/14"

Rubber hose 5 m DN8 with DN8 coupling valves

Safety valve set at 5 bar installed on DN8 coupling valve³

Safety valve set at 8 bar installed on DN8 coupling valve³

Coupling valve Adapter DN20/DN8

4-way distributor with DN8 coupling valves³

Magrini adapter Ø14 with DN8 coupling valve⁴

Magrini adapter Ø16 with DN8 coupling valve⁴

ASEA Adapter with DN8 coupling valve⁴

DN8 Male Coupling valve adapter - DN8 Male coupling valve⁵

Michelin adapter with DN8 coupling valve⁴

Digital pressure manometer kit (with DN8 and DN20 quick coupler adapters)⁵

CERTIFICATES ISSUED

📄 Certificate of Reduction unit testing

📄 Helium Leak Test Certificate
(UNI EN ISO 9712- SNT TC1A)

📄 Digital precision pressure manometer

Calibration Certificate

📄 Safety valve Calibration Certificate

📄 Safety valves INAIL Certificate

¹ Refilling Kit Low, Refilling Kit Classic, Refilling Kit Full

² Refilling Kit Medium, Refilling Kit Standard

³ Refilling Kit Classic, Refilling Kit Medium, Refilling Kit Standard, Refilling Kit Full

⁴ Refilling Kit Standard, Refilling Kit Full

⁵ Refilling Kit Full



▶ **SF₆ REFILLING KIT**
REF101-XX

COMPONENTS DESCRIPTION

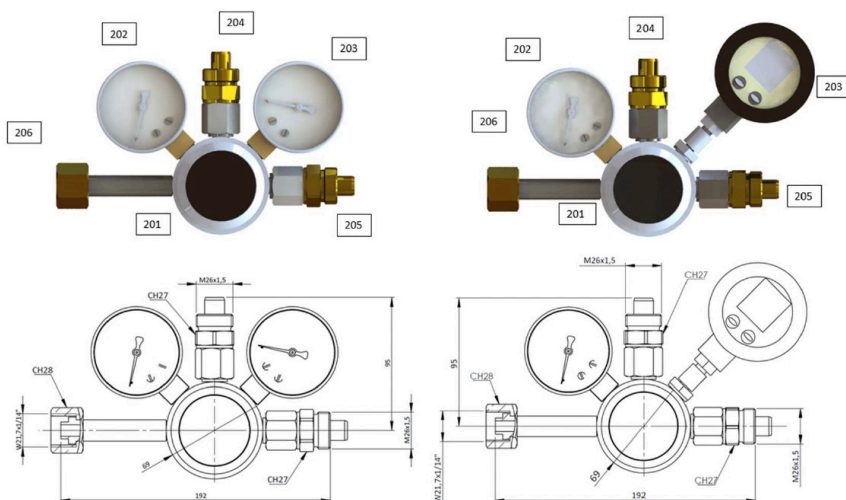


- 101** | Pressure reducer 1.5 ÷ 15 bar with SF₆ W 21,8x1/14" cylinder connection
- 102** | DN8 5 m rubber hose with DN8 female coupling valves
- 103** | Digital precision pressure manometer 0 ÷ 11 bar abs at pressure reducer outlet
- 104** | Quick connect adapter - DN20 coupling valve
- 105** | Quick connect adapter – DN8 coupling valve
- 106** | Safety valve installed on DN8 coupling valve
- 107** | 4-way distributor with DN8 coupling valves
- 108** | Coupling Valve Adapter DN20/DN8
- 109** | Magrini adapter Ø14 with DN8 coupling valve
- 110** | Magrini adapter Ø16 with DN8 coupling valve
- 111** | ASEA Adapter with DN8 coupling Valve
- 112** | Adapter connecting valve DN8 male - connecting valve DN8 male
- 113** | Michelin adapter with DN8 coupling valve



► **SF₆ REFILLING KIT**
REF101-XX

PRESSURE REDUCER



- 201** | Pressure reducer 0 ÷ 10 bar.
- 202** | Analog manometer 0 ÷ 60 bar at pressure reducer inlet.
- 203** | Analog manometer 0 ÷ 12 bar at pressure reducer outlet / Digital precision manometer 0 ÷ 11 bar abs⁶
- 204** | DN8 coupling valve (for safety valve connection ref. 106 and 107)
- 205** | DN8 coupling valve (for pipe connection ref. 102)
- 206** | SF₆ W 21.8x1/14" cylinder connection with sealing washer

⁶ Refilling Kit Medium, Refilling Kit Standard



▶ **SF₆ REFILLING KIT**
REF101-XX

PRESSURE REDUCER

Materials: chromed brass

Input pressure (high pressure): 0 ÷ 60 bar

Outlet pressure (low pressure): 0 ÷ 15 bar

Cylinder connection SF₆ W21.8x1/14"

Analog input manometer (high pressure): 0 ÷ 60 bar

Analog outlet pressure gauge (low pressure): 0 ÷ 12 bar / Digital precision pressure manometer 0 ÷ 11 bar abs

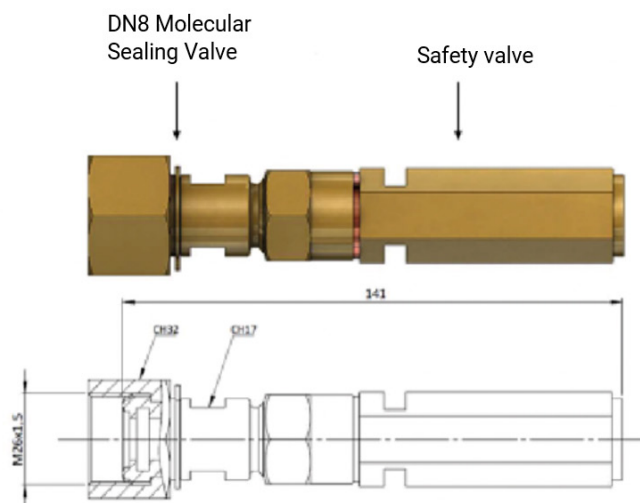
SAFETY VALVE KIT⁷

The SF₆ Refilling Reducer Kit includes two (or more on request) safety valves: each one is calibrated to a determined pressure of intervention.

The intervention pressure of the two standard valves is respectively:

- 5 bar;
- 8 bar;
- on customer's request.

Safety valves are directly assembled on DN8 coupling valves forming the **safety valve assembly**.



⁷ Refilling Kit Classic, Refilling Kit Medium, Refilling Kit Standard, Refilling Kit Full



► **SF₆ REFILLING KIT**
REF101-XX

DIGITAL PRECISION MANOMETER⁸

TECHNICAL SPECIFICATIONS:

Pressure range: 0 ÷ 11 bar abs

Power supply: 3 V battery, type CR 2430

Accuracy: 0.1 %FS standard - 0.2 %FS max

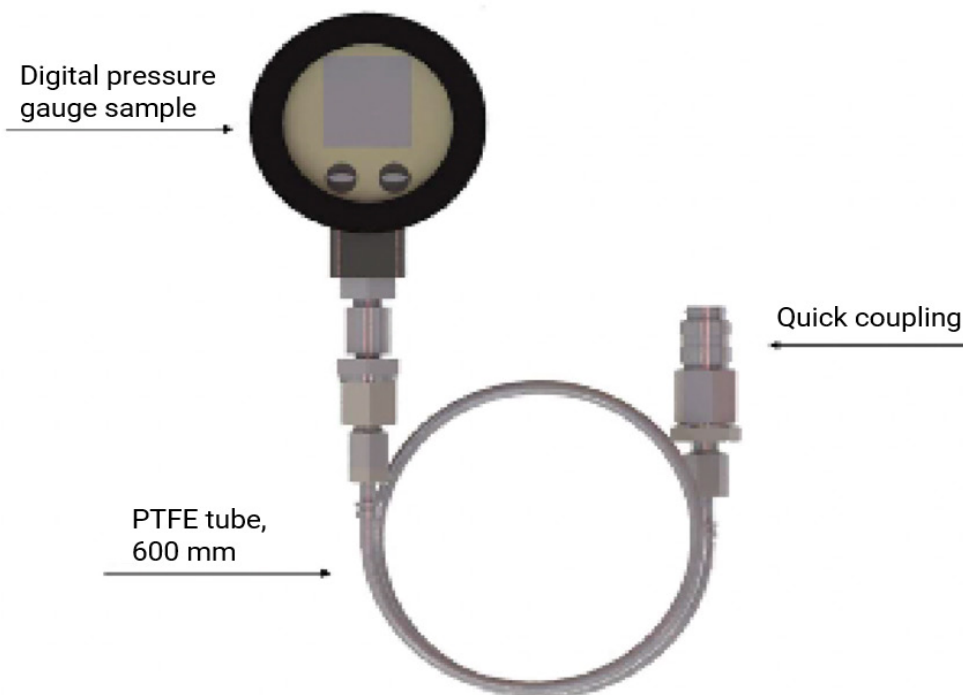
Battery life: 1000 hours in continuous operation

Service/operating temperature: 20...70 °C / 0...50 °C

Protection, CEI 529: IP65

ADDITIONAL COMPONENTS

- ☆ The pressure manometer is supplied installed directly on a highly flexible 600 mm long PTFE tube⁹.
- ☆ The pressure manometer is supplied with DN20 and DN8 quick coupling adapters which are detailed in chapter 6.5 (adapters supplied)¹⁰.



⁸ Refilling Kit Medium, Refilling Kit Standard (supplied mounted directly on the reducer), Refilling Kit Full (independently supplied)

⁹ Refilling Kit Full

¹⁰ Refilling Kit Full



▶ **SF₆ REFILLING KIT**
REF101-XX

RUBBER HOSE DN8 64 BAR

WITH COUPLING VALVES

The SF₆ Refilling Reducer Kit includes a **rubber hose** with:

- Hose length: 5 m;
- Hose diameter: DN8;
- PN64

Two DN8 coupling female valves are assembled at each end of the hose to ensure **perfect gas tightness inside the hose**.

The valves open only when they are coupled to the respective DN8 male coupling valves.

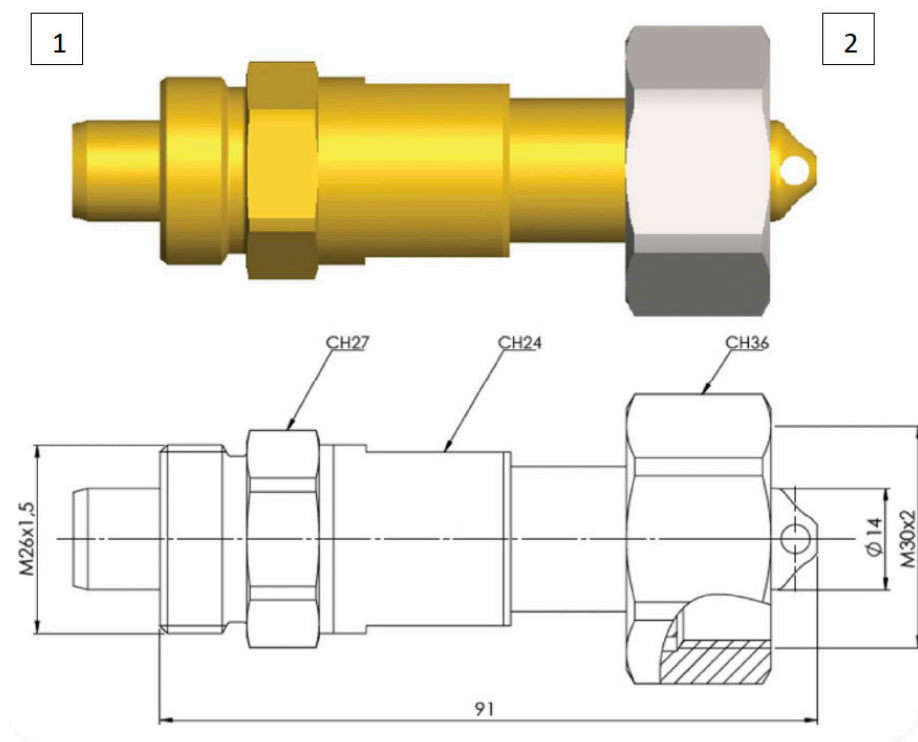
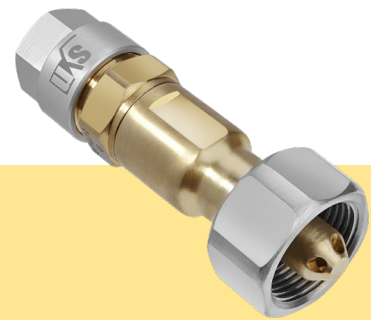


▶ **SF₆ REFILLING KIT**
REF101-XX

COMPONENTS DESCRIPTION

VAL102-06-V: MAGRINI Ø14 ADAPTER

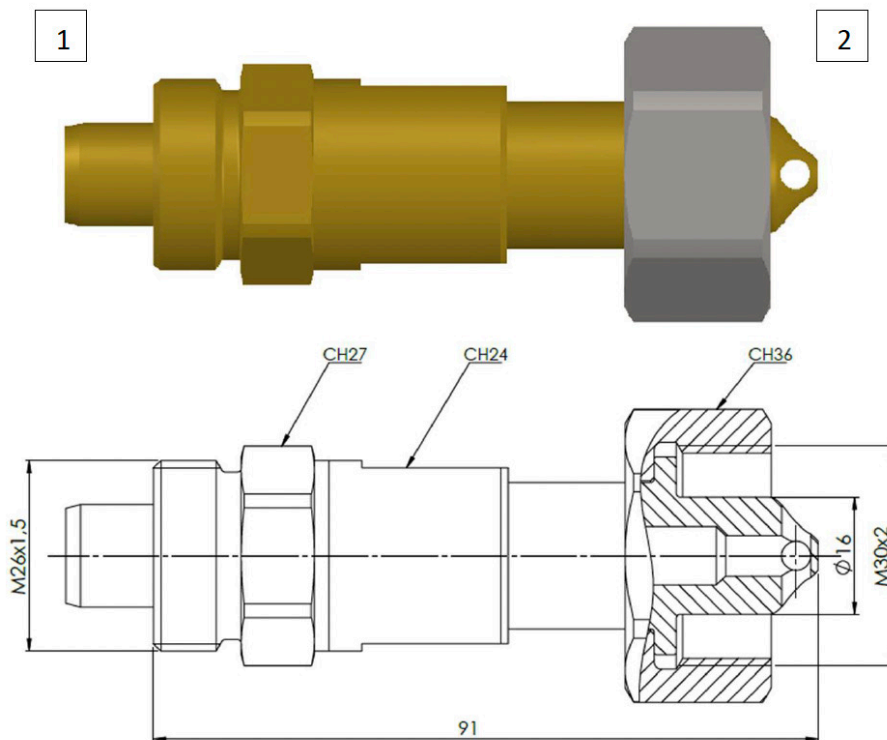
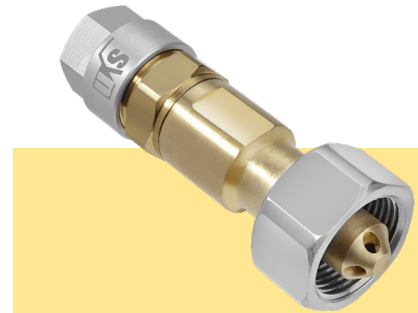
- ✔ Connection 1: DN8 male coupling valve M26x1,5
- ✔ Connection 2: Ø14 Magrini connection
- ✔ PN64
- ✔ Materials: Body: Brass - Nut: AISI 304



▶ **SF₆ REFILLING**
REF101-XX

■ **VAL102-07-V: MAGRINI Ø16 ADAPTER**

- ✔ Connection 1: DN8 male coupling valve M26x1,5
- ✔ Connection 2: Magrini Ø16 connection
- ✔ PN64
- ✔ Materials: Body: Brass - Nut: AISI 304



¹² Refilling Kit Standard, Refilling Kit Full

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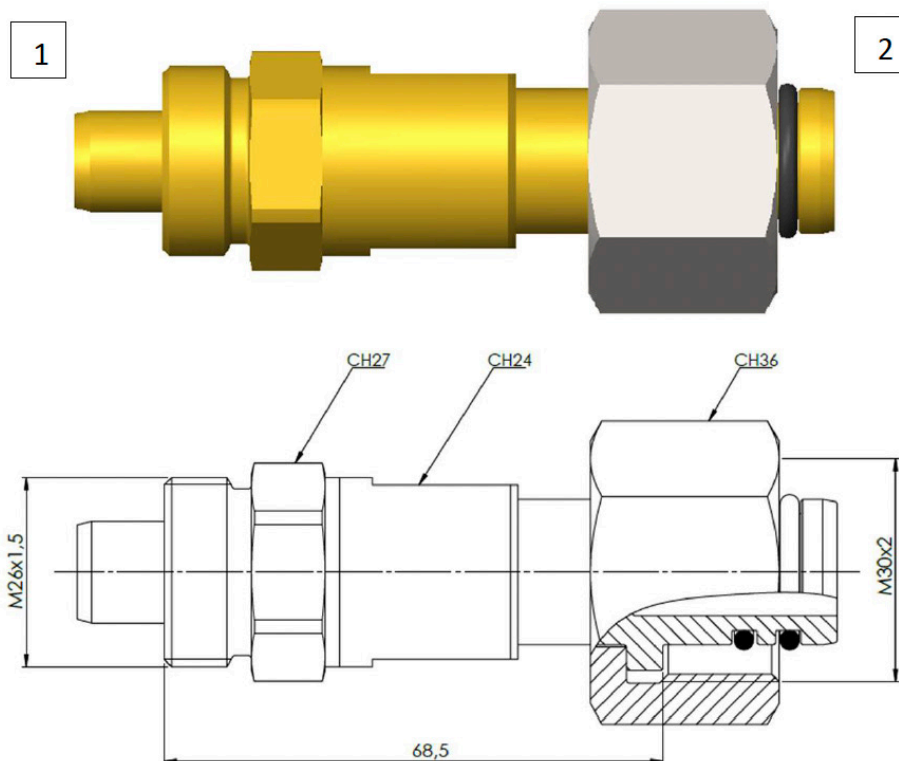
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▶ **SF₆ REFILLING KIT LOW**
REF101-01

■ **VAL102-08-V: COUPLING VALVE ADAPTER DN8 MALE - ASEA**

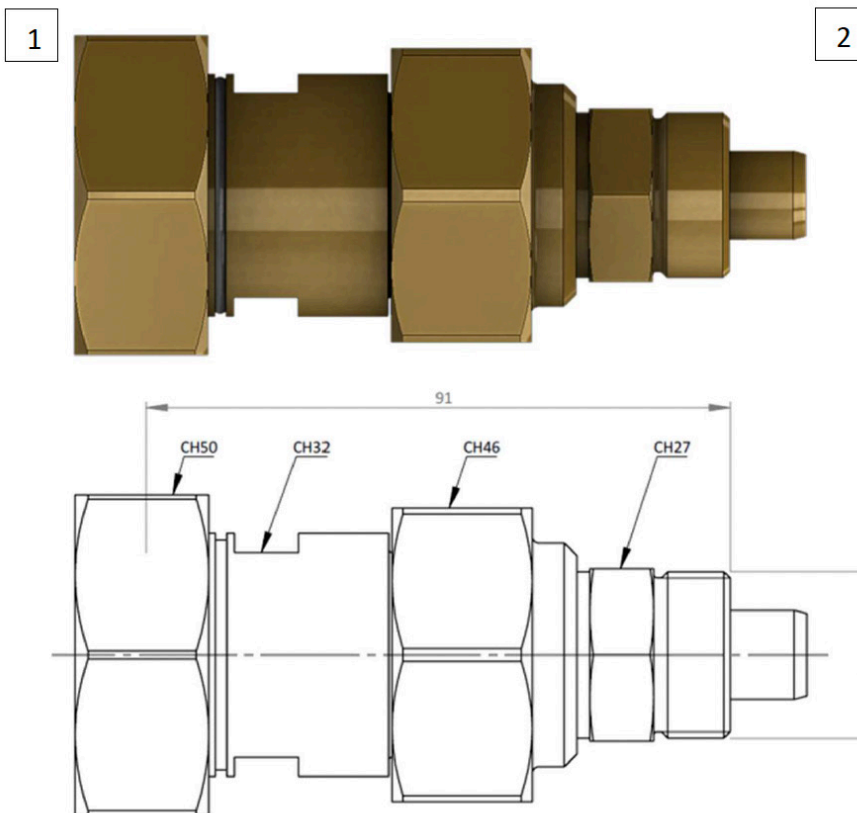
- ✔ Connection1: Molecular seal connection valve DN8 male M26x1,5
- ✔ Connection 2: ASEA connection
- ✔ PN64
- ✔ Materials: Body: Brass



▶ **SF₆ REFILLING KIT**
REF101-XX

■ **VAL102-15-V: COUPLING VALVE ADAPTER DN20/DN8¹¹**

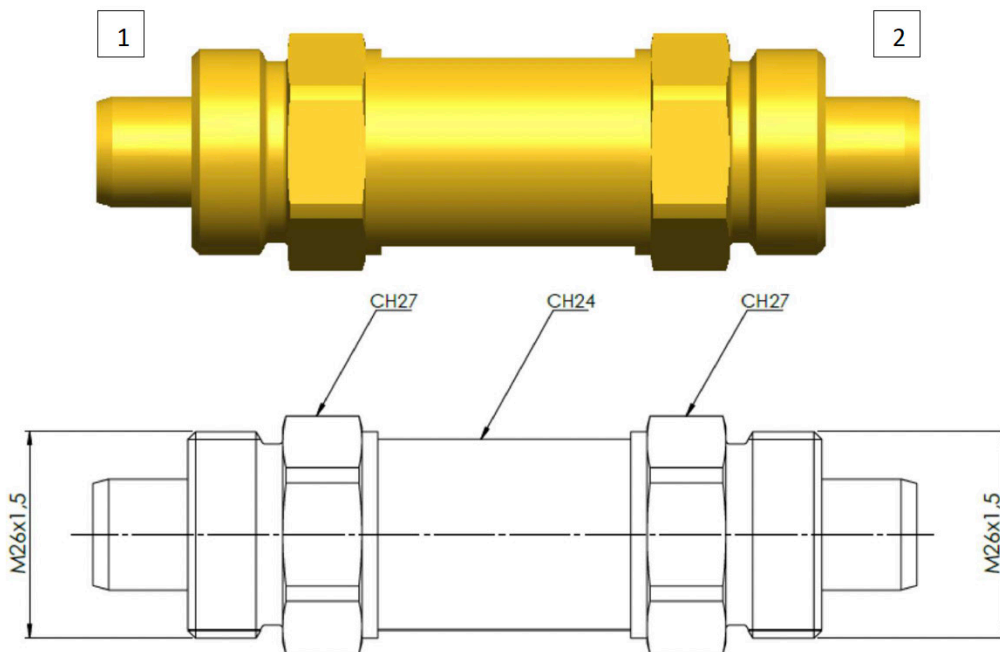
- ☑ Connection1: DN20 female Coupling valve M45x2
- ☑ Connection 2: DN8 male Coupling valve M26x1,5
- ☑ PN64
- ☑ Materials: Brass



▶ **SF₆ REFILLING KIT**
REF101-XX

**VAL102-13-V: DN8 MALE COUPLING VALVE ADAPTER -
DN8 MALE COUPLING VALVE**

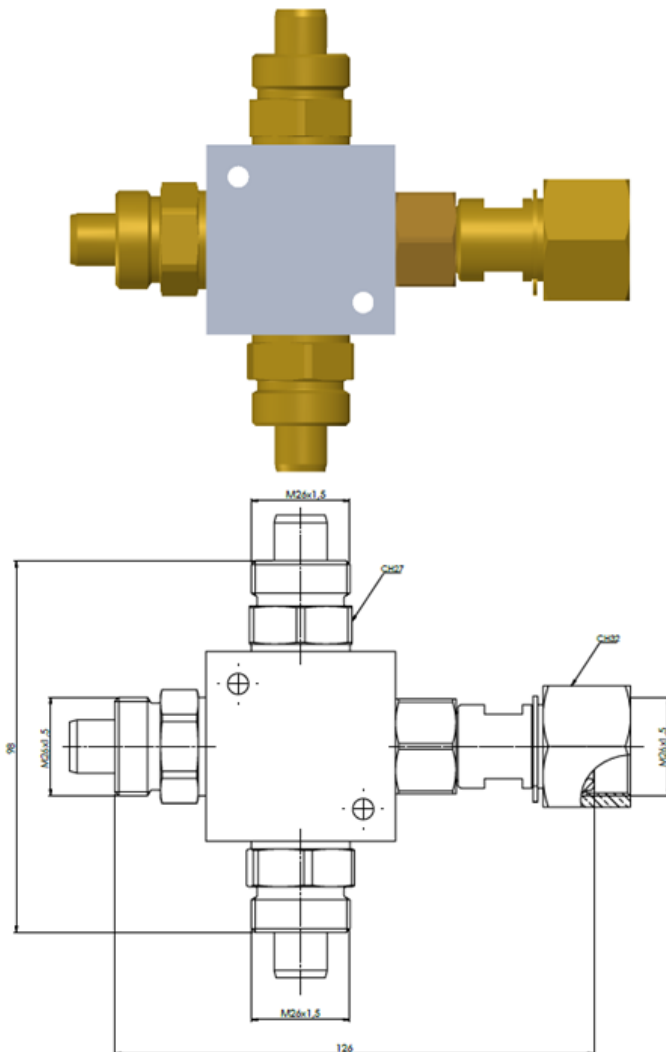
- ✔ Connection1: DN8 male Coupling valve M26x1,5
- ✔ Connection 2: DN8 male Coupling valve M26x1,5
- ✔ PN64
- ✔ Materials: Brass



▶ **SF₆ REFILLING KIT**
REF101-XX

■ **VAL102-19: 4-WAY DISTRIBUTOR WITH DN8 COUPLING VALVES**

- ✔ Connection 1: DN8 male coupling valve M26x1,5
- ✔ Connection 2: DN8 male coupling valve M26x1,5
- ✔ Connection 3: DN8 male coupling valve M26x1,5
- ✔ Connection 4: DN8 female coupling valve M26x1,5
- ✔ PN64
- ✔ Materials: Body: aluminium - Valves: brass



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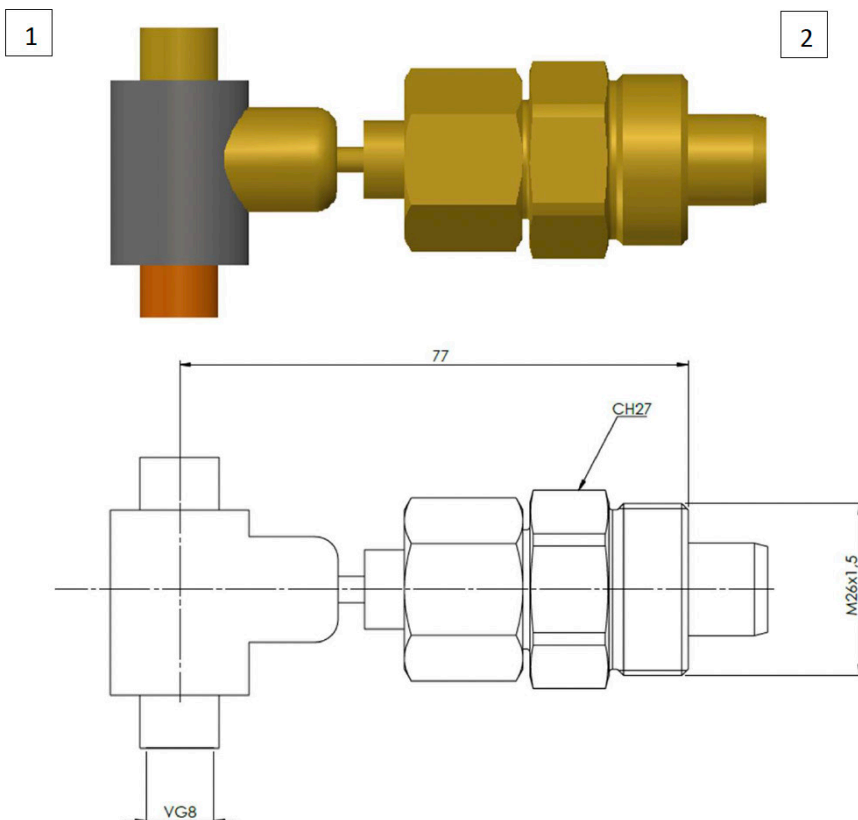
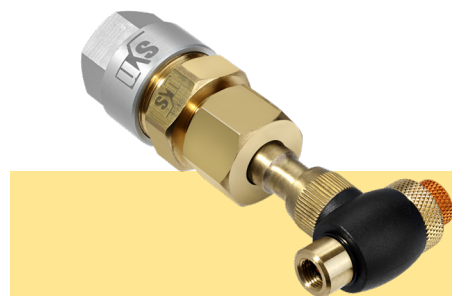
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▶ **SF₆ REFILLING KIT**
REF101-XX

VAL102-02-V: MICHELIN VALVE ADAPTER - DN8 MALE COUPLING VALVE

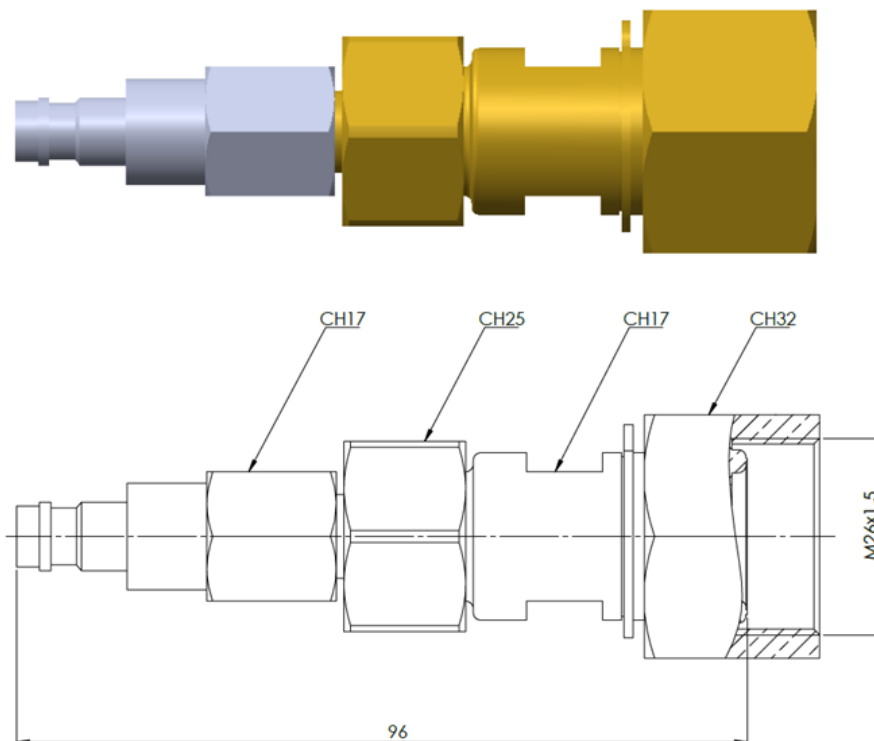
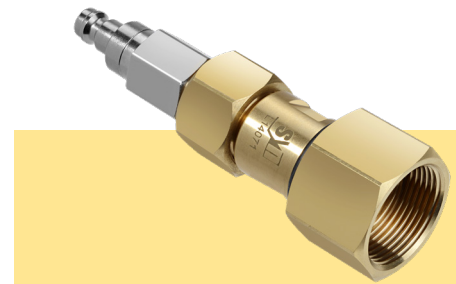
- ✔ Connection1: Michelin valve
- ✔ Connection 2: DN8 male coupling valve
- ✔ Materials: Body: Brass - Nut: AISI 304



▶ **SF₆ REFILLING KIT**
REF101-XX

■ **VAL102-50-V: DN8 MALE ADAPTER QUICK COUPLING - DN8 COUPLING VALVE**

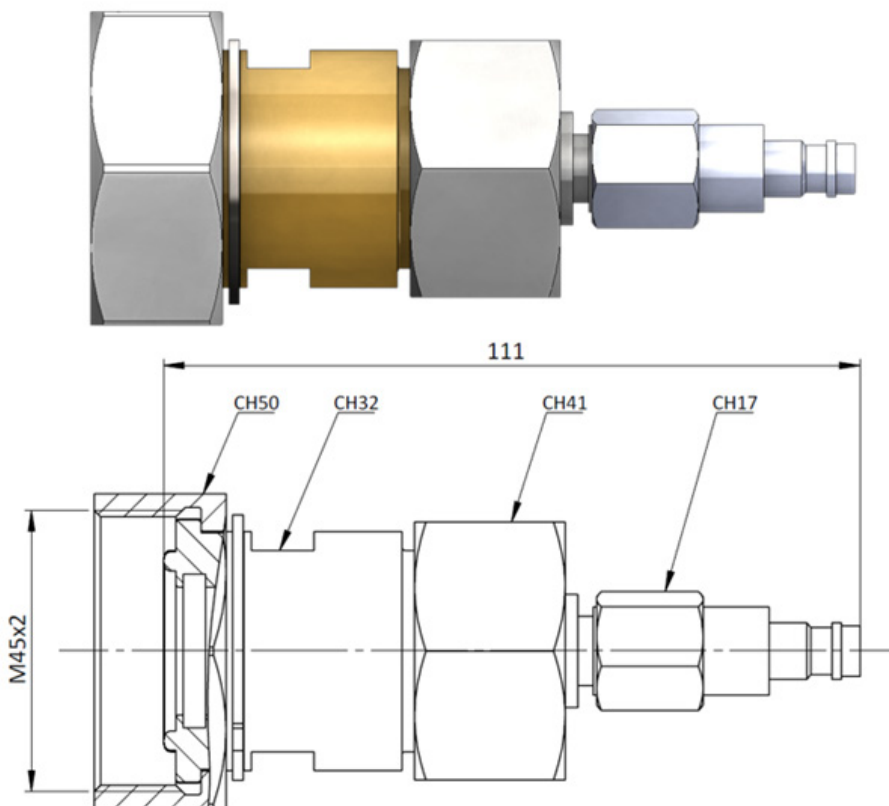
- ☑ Connection1: Male quick coupling
- ☑ Connection 2: DN8 female coupling valve M26x1,5
- ☑ PN35
- ☑ Materials: Body: Brass - Quick coupling: Chromed brass



▶ **SF₆ REFILLING KIT**
REF101-XX

■ **VAL103-50-V: DN20 MALE ADAPTER QUICK COUPLING - DN20 COUPLING VALVE**

- ✔ Connection 1: DN20 female coupling valve M45x2
- ✔ Connection 2: Male quick coupling
- ✔ PN35
- ✔ Material: Body: Brass - Quick coupling: Chromed brass



► COMFORT FLOW

REF102-03

DESCRIPTION

- **Certified weighing system** for easy data Reporting required by EU 2024/573
- Internal system for Refilling in **total safety** for the operator, the environment and the equipment
- Compact design for smooth and safe handling of SF₆ gas cylinders
- Intuitive interface, **easy to use**
- All connections are **molecular sealed**: the absence of SF₆ gas leaks is guaranteed and certified by Helium and SF₆ leak tests



TECHNICAL SPECIFICATIONS

⚙️ CHASSIS MATERIALS: Aluminum - Steel

⚙️ COLOURS: Yellow: RAL 1016 matt - Black (steel parts of the frame): RAL 9005 matt



► **COMFORT FLOW**
REF102-03

STANDARD EQUIPMENT

Stainless steel ball valve with oval handwheel in green colour

SF₆ bottle connection W21,8 x 1/14" DIN 477 N°6

Pressure reducer 1.5 ÷ 15 bar

5 m long rubber hose DN8 with coupling tongue part DN8 on both ends.

Backlit LCD display IP68 lb/kg with integrated battery charger 220 ÷ 230 V, 50/60 Hz

Bottle scale 0 ÷ 130 kg (sensitivity ±10 g)

Bluetooth connection

5 bar safety valve installed on DN8 valve

8 bar safety valve installed on DN8 valve

Inlet analog manometer 0 ÷ 60 bar

Digital Outlet precision gauge 0 ÷ 11 bar abs

Rubber wheels 260x85mm

Coupling tongue part DN20 + coupling groove part DN8

Cylinder fixing chain

Roller wrenches

OPTIONAL ACCESSORIES

☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves

☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves

☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves

☆ **VAL102-01**: Adapter kit DN8

CERTIFICATES ISSUED

📄 Calibration certificate of the weighing system issued by an accredited metrology laboratory

📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

📄 Digital precision pressure gauge calibration certificate

📄 Safety valve Calibration Certificate

📄 Safety valve INAIL Certificate

PROVIDED DOCUMENTS

📄 Operating Manual

📄 SF₆ safety data sheet

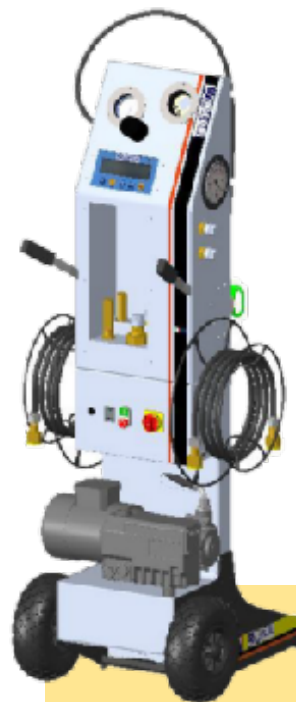


▶ VACUUM FLOW

REF102-04

DESCRIPTION

- Ideal for: Refilling and Air Evacuation in **total safety** for the operator, the environment and the equipment
- **Certified weighing system** for easy data Reporting required by EU 2024/573
- **Pressure Reducer** for Regulation of the outlet gas pressure
- **Analog inlet pressure gauge** for Pressure monitoring of the gas in the cylinder
- **Digital outlet pressure gauge** temperature compensated for Pressure monitoring of the gas entering the equipment
- Air Evacuation Final pressure: **<1 mbar**
- Clear separation between the filling circuit and the air evacuation circuit to **avoid contamination between SF₆ gas and air**



TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 730 mm - Width: 540 mm - Height: 1485 mm
- ⚙️ WEIGHT: 68 kg
- ⚙️ AIR VACUUM PUMP: 16 m³/h
- ⚙️ ATTAINABLE FINAL PRESSURE: 0.5 mbar
- ⚙️ WEIGHING RANGE: 130 kg / accuracy: ±10 g
- ⚙️ SAFETY VALVES: set at 5 and 8 bar or on request
- ⚙️ OPERATING VOLTAGE: 220 - 240 V / 50 - 60 HZ
- ⚙️ FRAME MATERIALS: Aluminum - Steel
- ⚙️ COLOURS: body: Aluminum - Yellow: RAL 1016 - Black (steel frame part): RAL 9005 matt



VACUUM FLOW

REF102-04

STANDARD EQUIPMENT

Solenoid protection valve (air evacuation)

Analog vacuum gauge 0 ÷ -1000 mbar (rel) for air evacuation

1 coupling valve on inlet (air evacuation)

1 coupling valve on inlet (SF₆ gas)

Ball valve with oval handwheel

SF₆ W 21.7 x 1/14" cylinder connection

Pressure reducer 1.5-15 bar

2 x 5 m DN8 hoses with DN8 female connection valves

Backlit LCD display IP68 lb/kg with charger

Load cell 130 kg IP67 with calibration certificate

Calibrated safety valve 5 bar with calibration certificate and installed on connection valve DN8/DN20

Calibrated safety valve 8 bar with calibration certificate and installed on connection valve DN8/DN20

Analogic pressure gauge 0 ÷ 60 bar at pressure reducer inlet

Digital pressure gauge 0 ÷ 11 bar abs at pressure reducer outlet


Solid elastic rubber wheels 260x85 mm


Roller wrench


OPTIONAL ACCESSORIES

☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves☆ **VAL102-01**: Adapter kit DN8

CERTIFICATES ISSUED

 Calibration certificate of the weighing system issued by an accredited metrology laboratory

 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

 Digital precision pressure gauge calibration certificate

 Safety valve Calibration Certificate

 Safety valve INAIL Certificate

PROVIDED DOCUMENTS

 Operating Manual

 SF₆ safety data sheet

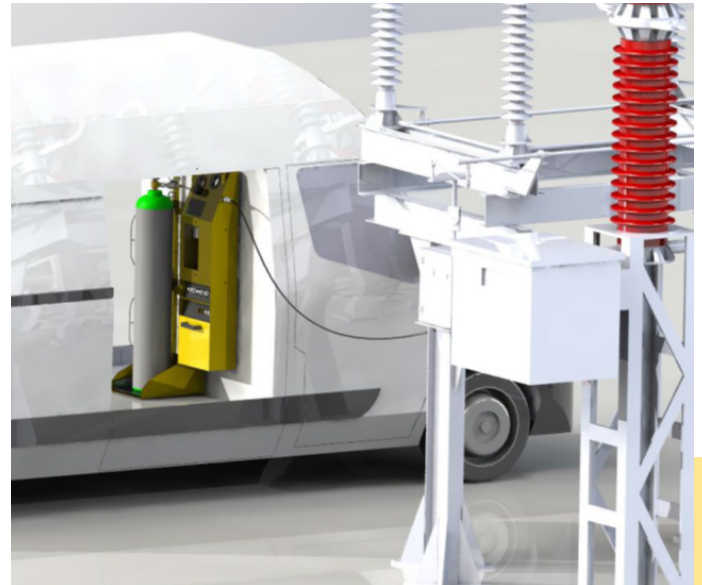

▶ ESAVAN

REF104-01

SF₆ FILLING AND WEIGHING

UNIT INSTALLED ON A VAN

- **Customizable product** according to the Recovery needs
- Ideal for: Refilling the equipment directly from a cylinder
- **Pressure Reducer** for Regulation of the outlet gas pressure
- **Inlet pressure gauge** for Pressure monitoring of the gas in the cylinder
- **Outlet pressure gauge** for Pressure monitoring of the gas entering the equipment
- **Certified weighing system** for easy data Reporting required by EU 2024/573
- A safety valve installed on the Refilling unit ensures operation in **total safety** for the operator, the environment and the equipment
- Safety belts for cylinders allow **safe transport**
- The purchase of the equipment involves the **installation of an extractor** inside the van



STANDARD EQUIPMENT

Ball valve with oval handwheel

Cylinder connection SF₆ W 21.7 x 1/14"

Pressure reducer 0-10 bar

Hose 5 m DN8 with connecting DN8 valves

Hose 10 m DN8 with connecting DN8 valves

IP68 lb/kg backlit LCD display with charger

Load cell 130 kg 10 g with calibration certificate

Safety valve calibrated 5 bar with calibration certificate and installed on connection valve DN8/DN20

Safety valve calibrated 8 bar with calibration certificate and installed on connection valve DN8/DN20

Analog pressure gauge input to pressure reducer

Digital pressure gauge sample output to pressure reducer

Adapter kit (Magrini, Asea, Michelin)

Valve kit and extensions

SF₆ leak detector

Roller wrench

Operation manual

Synecom SRL
Via Carlo Cattaneo, 4 - Stezzano (BG) - ITALIA

synecomsf6.com

**FOR FURTHER
INFORMATION
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AIR EVACUATION

▶ VACUUM PUMP

VPU101-XX

DESCRIPTION

- Ideal for: **Air evacuation** until a final pressure value of **less than 1 mbar**
- A **precision vacuum gauge** connected to the display allows monitoring of the pressure from 100 mbar to < 1 mbar
- The solenoid valve **avoids operating errors**:
 1. closes at every power failure or pump stop
 2. stay close in case of connection of a over-pressured hose (>1,5 bar abs)
- Available in **multiple versions** to meet all equipment size needs
- Easily **movable**
- **Compact** design
- Intuitive interface, **easy to use**
- All connections are **molecular sealed**



VPU101-01	Vacuum Pump 25 m ³ /h
VPU101-02	Vacuum Pump 40 m ³ /h
VPU101-03	Vacuum Pump 60 m ³ /h
VPU101-04	Vacuum Pump 100 m ³ /h
VPU101-05	Vacuum Pump 200 m ³ /h



► **VACUUM PUMP**
VPU101-XX

TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS:

Code	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	WEIGHT (kg)
VPU101-01	995	560	1010	130
VPU101-02	995	560	1010	135
VPU101-03	1200	800	1250	220
VPU101-04	1200	800	1250	270
VPU101-05	1200	800	1250	340

⚙️ **POWER SUPPLY:** 400 V - 50 / 60 Hz three-phase

⚙️ **COLOURS:** Matt yellow RAL 1016 - Matt black RAL 9005

⚙️ AIR VACUUM:

Code	Nominal Flow Rate (m ³ /h)	Final Pressure
VPU101-01	25	< 1 mbar
VPU101-02	40	< 1 mbar
VPU101-03	60	< 1 mbar
VPU101-04	100	< 1 mbar
VPU101-05	200	< 1 mbar



VACUUM PUMP

VPU101-XX

STANDARD EQUIPMENT

Air vacuum pump

Solenoid valve protecting the vacuum pump

Digital precision vacuum gauge 0 ÷ 100 mbar

Input connection: DN20 connection valve

O-LED display for vacuum level indication

Analog input vacuum gauge -1 ÷ 9 bar

Analog pressure gauge -1 ÷ 9 bar


Wheels with swivel plate support and brake


Code	Connection valves	Hoses
VPU101-01/02	1 x DN20	1 x 5m DN20 hose with DN20 connection valves
VPU101-03/04/05	2 x DN20 1 x DN40	2 x 5m DN20 hose with DN20 connection valves 1 x 5m DN40 hose with DN40 connection valves

PROVIDED DOCUMENTS

 Operation and Maintenance Manual

CERTIFICATES ISSUED

 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

 Digital Vacuum Gauge Calibration Certificate

OPTIONAL ACCESSORIES

☆ **TBS102-02**: 10m Rubber hose DN20 with DN20 female valves

☆ **TBS102-03**: 20m Rubber hose DN20 with DN20 female valves

☆ **TBS107-02**: 10m Rubber hose DN40 with DN40 female valves

☆ **VAL103-01**: Adapter kit DN20

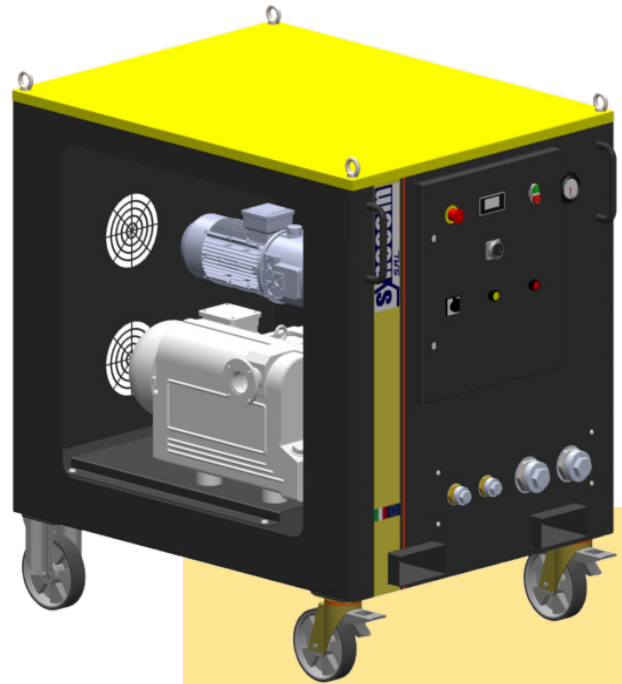


AIR EVACUATION UNIT

VPU102-01

DESCRIPTION

- Ideal for: **Air evacuation** until a final pressure value of **less than 1 mbar**
- A **precision vacuum gauge** connected to the display allows the monitoring of the pressure during the Vacuuming procedure
- The solenoid valve **avoids operating errors**:
 1. closes at every power failure or pump stop
 2. stay closed in case of connection of a over-pressured hose (>1,5 bar abs)
- Easily **moveable**
- **Compact** design
- Intuitive interface, **easy to use**
- All connections are **molecular sealed**



TECHNICAL SPECIFICATIONS

- ⚙️ **POWER SUPPLY:** 400 V - 50 Hz three-phase
- ⚙️ **COLOURS:** Yellow matt RAL 1016 - Black matt RAL 9005
- ⚙️ **DIMENSIONS:** Length: 1400mm, Width: 1000mm, Height: 1400mm
- ⚙️ **WEIGHT:** 450kg

Air vacuum pump

- ⚙️ **NOMINAL FLOW RATE:** 200 m³/h
- ⚙️ **ACHIEVABLE FINAL PRESSURE:** 0,08 mbar

Roots pump

- ⚙️ **NOMINAL FLOW RATE:** 505 m³/h
- ⚙️ **PRESSURE DIFFERENTIAL ACROSS PUMP:** 0-110 mbar



► **AIR EVACUATION UNIT**
VPU102-01

STANDARD EQUIPMENT

Air vacuum pump

Roots pump

Protection of the vacuum pump by a solenoid valve

0 LED display for pressure indication

Precision vacuum gauge

Inlet analogue pressure gauges

2x connection valve DN20

2x connection valve DN40

Vulcanized rubber wheels with swivel plate support and brake

5 m DN20 hose with DN20 connection valves

5 m DN40 hose with DN40 connection valves

PROVIDED DOCUMENTS

📄 Operation and Maintenance Manual

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

📄 Digital Vacuum Gauge Calibration Certificate





SF6 GAS ANALYSIS

▶ SF₆ ANALYSER

ALY101-05

DESCRIPTION

- Up to **3 different measurable parameters** to verify the purity of the gas according to the CEI EN 60480: SF₆, SO₂ and dew-point
- **Accurate and quick analysis**
- **Downloadable data** on USB stick
- The **absence of SF₆ gas leaks** is guaranteed by a closed-loop system
- Special **flexible bag** for gas storage

- Internal **rechargeable battery** for different analyses with a single charge
- Analysed gas stored inside the analyser can be returned to the compartment through the **pump-back function** or the device can be used as an analysis tool for a **continuous flow**



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 428 mm - Width: 555 mm - Height 306 mm

⚙️ WEIGHT: 24 kg

⚙️ LINE VOLTAGE FOR CHARGING: 100-240 Vac 50/60 Hz

⚙️ MAX OUTLET PRESSURE DURING PUMP-BACK FUNCTION: 10 barg

⚙️ MAX INLET PRESSURE: 35 barg

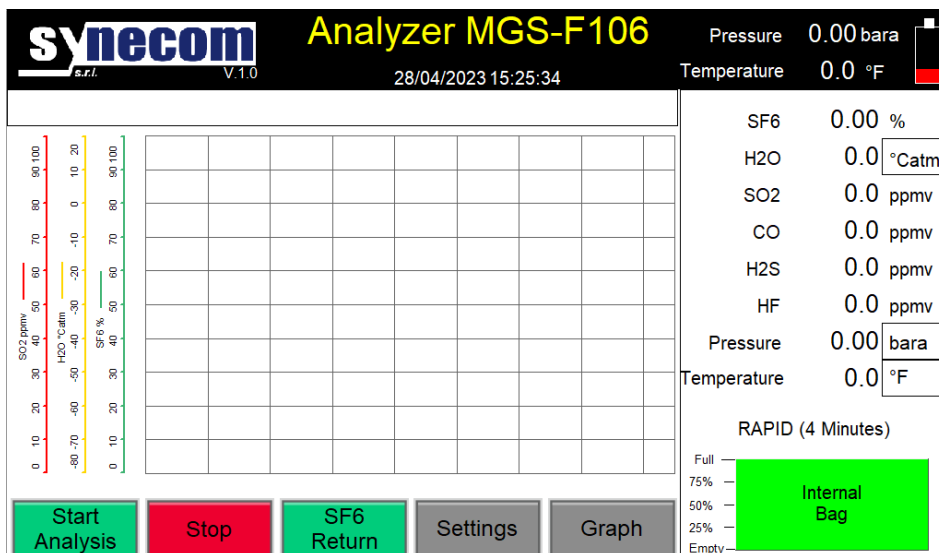
⚙️ MIN INLET PRESSURE: 1,2 barA (0,2 barG)

⚙️ DATA OUTPUT: via USB memory stick

⚙️ DISPLAY: 10.1" TFT



► **SF₆ ANALYSER**
ALY101-05



STANDARD EQUIPMENT

SF₆ sensor (infrared)
NDIR technology
Resolution: 0,01 Vol. %
Accuracy: ± 0,5 Vol. %

Dew-point sensor
Measuring range: -80°C ... +20°C
Accuracy: ± 2°C from +20°C to -40°C
± 3°C from -40 to -60° C

SO₂ sensor (electrochemical)
Nominal range: 0-100 ppm*
Resolution: <0.1 ppm
Accuracy: ± 2%
Longterm stability: < 2% per month

*also available 0-20 ppm, 0-500 ppm, 0-2000 ppm

Storage temperature: -10° ÷ +60°C
Operating temperature: -10°C ÷ +50°C

Connection: DN20 Synecom valve - quick coupler

Connection: DN8 Synecom valve - quick coupler

6 m hose with quick couplings

Transport case



▶ **SF₆ ANALYSER**
ALY101-05

OPTIONAL ACCESSORIES

- ☆ **ALY104-01:** Gas recovery bag
- ☆ **ALY103-01:** Pressure reducer for gas analysis in cylinders
- ☆ **TBS105-02:** 4m hose for analysis
- ☆ **VAL102-01:** DN8 SF₆ Adapter Kit
- ☆ **VAL103-01:** DN20 SF₆ Adapter Kit

CERTIFICATES ISSUED

- 📄 Certificate of CE conformity
- 📄 Certificate of calibration for sensors
- 📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

PROVIDED DOCUMENTS

- 📄 Operating Manual



▶ SF₆ FULL ANALYSER

ALY101-06

DESCRIPTION

- **Different measurable parameters** to verify the purity of the gas according to the CEI EN 60480: SF₆ SO₂ CO H₂S HF and dew-point
- **Accurate and quick analysis**
- **Downloadable data** on USB stick
- The **absence of SF₆ gas leaks** is guaranteed by a closed-loop system
- Special **flexible bag** for gas storage

- Internal **rechargeable battery** for different analyses with a single charge
- Analysed gas stored inside the analyser can be returned to the compartment through the **pump-back function** or the device can be used as an analysis tool for a **continuous flow**



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 428 mm - Width: 555 mm - Height 306 mm

⚙️ WEIGHT: 24 kg

⚙️ LINE VOLTAGE FOR CHARGING: 100-240 Vac 50/60 Hz

⚙️ MAX OUTLET PRESSURE DURING PUMP-BACK FUNCTION: 10 barg

⚙️ MAX INLET PRESSURE: 35 barg

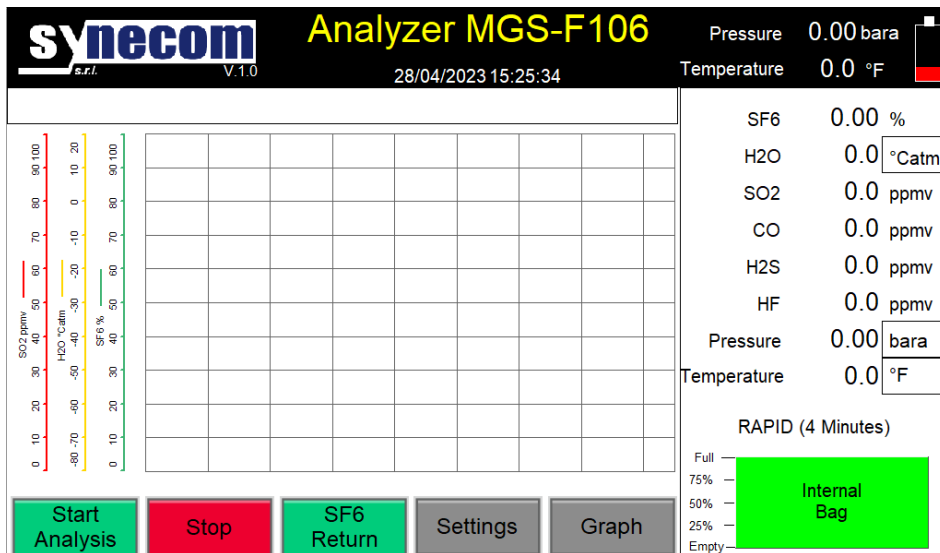
⚙️ MIN INLET PRESSURE: 1,2 barA (0,2 barG)

⚙️ DATA OUTPUT: via USB memory stick

⚙️ DISPLAY: 10.1" TFT



SF₆ FULL ANALYSER
ALY101-06



STANDARD EQUIPMENT

SF₆ sensor (infrared)
NDIR technology
Resolution: 0,01 Vol. %
Accuracy: ± 0,5 Vol. %

Dew-point sensor
Measuring range: -80°C ... +20°C
Accuracy: ± 2°C from +20°C to -40°C
± 3°C from -40°C to -60°C

SO₂ sensor (electrochemical)
Nominal range: 0-100 ppm*
Resolution: <0.1 ppm
Accuracy: ± 2%
Longterm stability: < 2% per month

* also available 0-20 ppm, 0-500 ppm, 0-2000 ppm

CO sensor (electrochemical)
Nominal Range: 0-1000 ppm*
Resolution: 0.1 ppm
Accuracy: ± 2%
Longterm stability: < 2% per month

* also available 0-200 ppm

H₂S sensor (electrochemical)
Nominal Range: 0-100 ppm*
Resolution: 0.1 ppm
Accuracy: ± 2%
Longterm stability: < 2% per month

* also available 0-10 ppm, 0-50 ppm, 0-1000 ppm

HF sensor (electrochemical)
Nominal Range: 0-10 ppm
Resolution: 0.1 ppm
Accuracy: ± 10%
Longterm stability: < 2% per month

Storage temperature: -10° ÷ +60°C
Operating temperature: -10°C ÷ +50°C

Connection: DN20 Synecom valve - quick coupler

Connection: DN8 Synecom valve - quick coupler

6 m hose with quick couplings

Transport case



▶ **SF₆ FULL ANALYSER**
ALY101-06

OPTIONAL ACCESSORIES

- ☆ **ALY104-01:** Gas recovery bag
- ☆ **ALY103-01:** Pressure reducer for gas analysis in cylinders
- ☆ **TBS105-02:** 4m hose for analysis
- ☆ **VAL102-01:** DN8 SF₆ Adapter Kit
- ☆ **VAL103-01:** DN20 SF₆ Adapter Kit

CERTIFICATES ISSUED

- 📄 Certificate of CE conformity
- 📄 Certificate of calibration for sensors
- 📄 Helium Leak Test Certificate (performed by qualified-technicians UNI EN ISO 9712 - SNT TC1A)

PROVIDED DOCUMENTS

- 📄 Operating Manual



▶ PRESSURE REDUCER FOR ANALYSIS IN CYLINDERS

ALY103-01

DESCRIPTION

- Ideal for: **pressure reduction during SF₆ gas analysis in cylinders**
- Compensated valve for **high stability**
- **Overpressure relief valve**



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS length: 110 mm, height: 95 mm, depth: 110 mm

⚙️ WEIGHT: 520 g

⚙️ INLET PRESSURE: max. 230 bar

⚙️ OUTLET PRESSURE: 0 - 4 bar

⚙️ CYLINDER CONNECTION: DIN 477 nr. 6

⚙️ OUTPUT CONNECTION: 1/8" NPTf

⚙️ TEMPERATURE RANGE: - 20°C to 60°C

⚙️ LEAK RATE:

to atmosphere: $\leq 10^{-8}$ mbar l/s He

via valve seat: $\leq 10^{-6}$ mbar l/s He

⚙️ MATERIALS:

diaphragm: Hastelloy C276

CERTIFICATES ISSUED

📄 Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)



▶ SF₆ GAS RECOVERY BAG ALY104-01

DESCRIPTION

- Ideal for: **store** up to 80lt of SF₆ gas while analysis tests are carried out and **avoid emission** in the atmosphere according to EU 2024/573 Regulation
- Once the Recovery Bag is full the SF₆ can be manually or automatically **pumped-back** to the cylinder
- **Molecularly sealed connections** allow the bag to be easily connected to an SF₆ gas analyzer and ensure no leaks of SF₆ into the atmosphere
- The bag is made of an extremely tough, **heavy duty DP472 PU (712028) coated polyamide material**
- A **safety blow off valve** is incorporated, in addition to a clear pocket on the side for documents and a strong, reinforced handle for transport



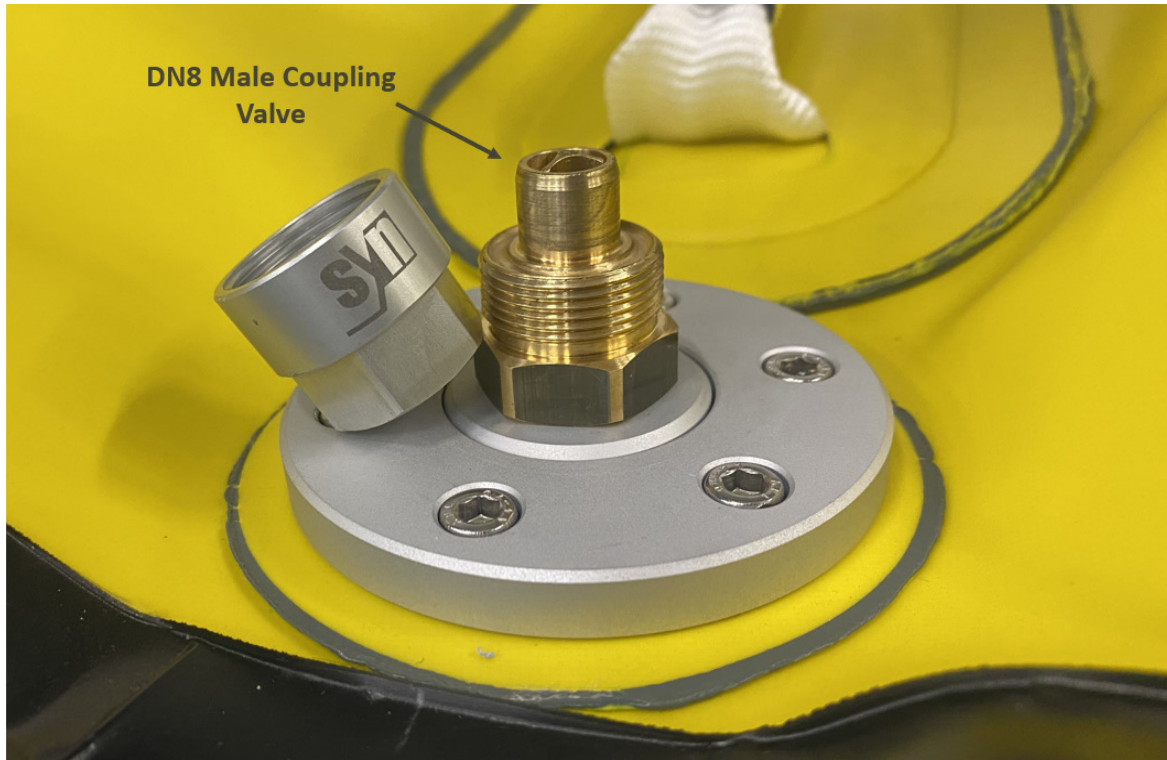
TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 400 mm - Width: 400 mm - Diagonal: 500 mm
- ⚙️ WEIGHT (DEFLATED): 2,7 kg
- ⚙️ MAXIMUM CAPACITY: 80 l
- ⚙️ TYPE OF INTERFACE CONNECTION: molecular sealed valve
- ⚙️ SAFETY VALVE INTERVENTION THRESHOLD: 0.2 bar
- ⚙️ MAXIMUM PRESSURE: 0.24 bar
- ⚙️ MAXIMUM VACUUM: -50 mbar
- ⚙️ MANUFACTURING MATERIAL: Polyamide PU coated DP472 (712028)



▶ **SF₆ GAS RECOVERY BAG**
ALY104-01

STANDARD EQUIPMENT



OPTIONAL ACCESSORIZE

- ☆ **VAL102-50-V**: Quick DN8 coupling adapter
- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves





**SF₆ GAS
LEAK DETECTION**

▶ SF₆ SNIFFER LEK102-02

DESCRIPTION

- Ideal for: **Leak detection** in equipments containing SF₆ gas
- **Audible and visual alarms** with easy to read LED display

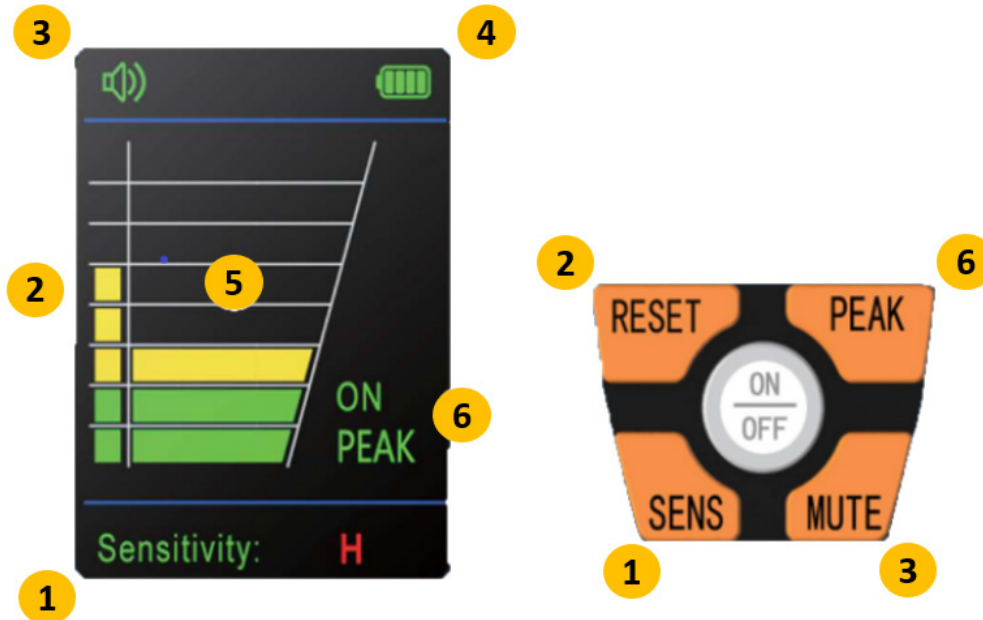


TECHNICAL SPECIFICATIONS

- ⚙️ SENSOR TYPE: infrared
- ⚙️ SENSOR LIFE: 10 years
- ⚙️ MAX SENSITIVITY: 5PPM
- ⚙️ SENSITIVITY LEVELS: High/Medium/Low
- ⚙️ BATTERY LIFE: 6 Hours
- ⚙️ ALARM MODE: Visual/Audible
- ⚙️ AUTOMATIC SHUTOFF: 10 Minutes




► **SF₆ SNIFFER**
LEK102-02



- | | |
|---|---|
| 1 | Sensitivity level |
| 2 | Maximum leak value detected (if PEAK turned on) |
| 3 | Buzzer mute indicator |
| 4 | Battery level indicator |
| 5 | Current leakage indicator |
| 6 | Peak button status |

PROVIDED DOCUMENTS

 Operating manual



▶ SF₆ LEAK DETECTOR

LEK103-03

DESCRIPTION

- Ideal for: **detection and exact quantification of leaks** in equipment containing SF₆ gas
- **Audible and visual alarms** with easy to read display
- **Precise localisation of the leak** where the SF₆ concentration in the air is higher
- **Quantify the exact amount** of SF₆ leak in ppmv on the display
- **Easy to clean/change dust filter**
- **High sensitivity**



TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 285mm - Width: 114 mm - Height: 150 mm
- ⚙️ WEIGHT: 2,8kg
- ⚙️ TECHNOLOGY: NDIR (non-dispersive infrared sensor)
- ⚙️ REPEATABILITY: $\leq \pm 0,2\%$
- ⚙️ ACCURACY: 1 ppmv
- ⚙️ RESOLUTION: 1 ppmv
- ⚙️ VOLTAGE SUPPLY: Lithium-ion rechargeable battery operating time up to 10hours
- ⚙️ MEASURING RANGE: 0-1000 ppmv
- ⚙️ DETECTION LIMIT: 1 ppmv (3g/year)
- ⚙️ OPERATING TEMPERATURE: 0°C ÷ +50°C
- ⚙️ STORAGE TEMPERATURE: -20°C ÷ +60°C
- ⚙️ OPERATING HUMIDITY: 0 ÷ 95% rel.
- ⚙️ RESPONSE TIME: ~ 1 sec
- ⚙️ FLOW RATE: 1L/min
- ⚙️ COLOURS: Yellow matt: RAL1016 Black matt: RAL9005

Synecom SRL
Via Carlo Cattaneo, 4 - Stezzano (BG) - ITALIA

synecomsf6.com

**FOR FURTHER
INFORMATION
CONTACT US**



▶ **SF₆ LEAK DETECTOR**
LEK103-03

STANDARD EQUIPMENT

Synecom SF₆ Leak detector

Power cable

Semi-rigid pipe 250 mm

Electrical extension cable 2m

USB with operating manual

Shoulder strap

Transport case

CERTIFICATES ISSUED

 CE conformity certificate



FIXED SF₆ LEAK DETECTION SYSTEM WITH CONTROL UNIT

LEK104-XX

DESCRIPTION

- **Ideal for: real-time detection** of SF₆ gas levels in indoor equipment
- **To be used in combination: LEK104-02 network monitor** visualising the measurements detected by any number or combination of **sensors LEK104-03** (sensor with display) and/or **LEK104-04** (withouth display)
- **Configurable alarm thresholds and warning messages**
- **Visualisation** of the exact quantity of SF₆ dispersed into the atmosphere on the displays in ppm or gr/y
- **High sensitivity**



LEK 104-02



LEK 104-03



LEK 104-04



▶ **FIXED SF₆ LEAKS DETECTION SYSTEM
WITH CONTROL UNIT**
LEK104-XX

LEK104-02 NETWORK MONITOR

TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 210 mm - Width: 346 mm - Height: 151 mm
- ⚙️ WEIGHT: 2,9 kg
- ⚙️ USED TECHNOLOGY: NDIR (non-dispersive infrared sensor), Dual Wavelength
- ⚙️ DIGITAL RESOLUTION: 1 ppm
- ⚙️ DISPLAY DIMENSIONS: 7"
- ⚙️ MEASURING RANGE: 0-1500 ppm SF₆
- ⚙️ OPERATING TEMPERATURE: -20°C ÷ +40°C
- ⚙️ STORAGE TEMPERATURE: -20°C ÷ +60°C
- ⚙️ OPERATING HUMIDITY: 0 ÷ 95% rel.
- ⚙️ HEATING TIME: < 2 min
- ⚙️ RESPONSE TIME: approx. 60 s
- ⚙️ PROTECTION CLASS: IP 41
- ⚙️ INPUT VOLTAGE: 1-2-3x 230-400-500V AC, 50-60Hz
- ⚙️ OUTPUT SIGNAL: MODBUS TCP/IP RJ45 for SCADA application
- ⚙️ COLOURS: Yellow matt: RAL1016 Black matt: RAL9005
- ⚙️ ALARMS: Audible alarms
- ⚙️ OUTPUT: 8 output relay



▶ **FIXED SF₆ LEAKS DETECTION SYSTEM
WITH CONTROL UNIT**
LEK104-XX

LEK104-03 SENSOR WITH DISPLAY

TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 188 mm - Width: 125 mm - Height: 75 mm
- ⚙️ WEIGHT: 0,6 kg
- ⚙️ USED TECHNOLOGY: NDIR (non-dispersive infrared sensor), Dual Wavelength
- ⚙️ DIGITAL RESOLUTION: 1 ppm
- ⚙️ DISPLAY DIMENSIONS: integrated 3" LCD display
- ⚙️ MEASURING RANGE: 0-1500 ppm SF₆
- ⚙️ LIMIT OF DETECTION (3σ): ≤10 ppm
- ⚙️ REPEATABILITY: ≤ ±20 ppm
- ⚙️ ERROR OF LINEARITY: ≤ ±30 ppm
- ⚙️ OPERATING TEMPERATURE: -20°C ÷ +40°C
- ⚙️ STORAGE TEMPERATURE: -20°C ÷ +60°C
- ⚙️ OPERATING HUMIDITY: 0 ÷ 95% rel.
- ⚙️ HEATING TIME: < 2 min
- ⚙️ RESPONSE TIME: approx. 60 s
- ⚙️ PROTECTION CLASS: IP 41
- ⚙️ RECOMMENDED RANGE OF MONITORING: 250 m²
- ⚙️ INLET VOLTAGE: 24 VCC
- ⚙️ OUTPUT SIGNAL: MODBUS / RTU via RS485
- ⚙️ COLOURS: Yellow matt: RAL1016 Black matt: RAL9005



▶ **FIXED SF₆ LEAKS DETECTION SYSTEM
WITH CONTROL UNIT**
LEK104-XX

LEK104-04 SENSOR

TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 98 mm - Width: 119 mm - Height: 75 mm
- ⚙️ WEIGHT: 0,3 kg
- ⚙️ USED TECHNOLOGY: NDIR (non-dispersive infrared sensor), Dual Wavelength
- ⚙️ DIGITAL RESOLUTION: 1 ppm
- ⚙️ MEASURING RANGE: 0-1500 ppm SF₆
- ⚙️ LIMIT OF DETECTION (3σ): ≤10 ppm
- ⚙️ REPEATABILITY: ≤ ±20 ppm
- ⚙️ ERROR OF LINEARITY: ≤ ±30 ppm
- ⚙️ OPERATING TEMPERATURE: -20°C ÷ +40°C
- ⚙️ STORAGE TEMPERATURE: -20°C ÷ +60°C
- ⚙️ OPERATING HUMIDITY: 0 ÷ 95% rel.
- ⚙️ HEATING TIME: < 2 min
- ⚙️ RESPONSE TIME: approx. 60 s
- ⚙️ PROTECTION CLASS: IP 41
- ⚙️ RECOMMENDED RANGE OF MONITORING: 250 m²
- ⚙️ INLET VOLTAGE: 24 VCC
- ⚙️ OUTPUT SIGNAL: MODBUS / RTU via RS485
- ⚙️ COLOURS: Yellow matt: RAL1016 Black matt: RAL9005



▶ **FIXED SF₆ LEAKS DETECTION SYSTEM
WITH CONTROL UNIT**
LEK104-XX

PROVIDED DOCUMENTS

📄 Operating manual

CERTIFICATES ISSUED

📄 EC Certificate of Conformity

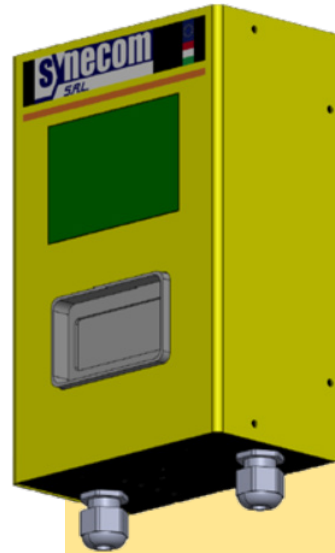


INDEPENDENT SF₆ LEAK DETECTION SYSTEM

LEK104-03

DESCRIPTION

- **Ideal for: Real-time detection** of SF₆ levels in indoor plants
- **Audible alarms** once SF₆ gas is detected in the environment
- **Visualisation** of the exact quantity of SF₆ dispersed into the atmosphere on the display **in ppm or gr/y**
- **High sensitivity**



TECHNICAL SPECIFICATIONS

- ⚙️ **DIMENSIONS:** Length: 188 mm - Width: 125 mm - Height: 75 mm
- ⚙️ **WEIGHT:** 0,6 kg
- ⚙️ **USED TECHNOLOGY:** NDIR (non-dispersive infrared) sensor, Dual Wavelength
- ⚙️ **DIGITAL RESOLUTION:** 1 ppmv
- ⚙️ **MEASURING RANGE:** 0 ÷ 1500 ppm SF₆
- ⚙️ **LIMIT OF DETECTION (3σ):** ≤10 ppm
- ⚙️ **REPEATABILITY:** ≤ ±20 ppm
- ⚙️ **ERROR OF LINEARITY:** ≤ ±30 ppm
- ⚙️ **TEMPERATURE OF EXERCISE:** -20°C ÷ +40°C
- ⚙️ **TEMPERATURE OF STORAGE:** -20°C ÷ +60°C
- ⚙️ **HUMIDITY OF EXERCISE:** 0 ÷ 95% rel.
- ⚙️ **RESPONSE TIME:** Approx. 60 s
- ⚙️ **PROTECTION CLASS:** IP 41
- ⚙️ **INPUT VOLTAGE:** 24 VCC
- ⚙️ **OUTPUT SIGNAL:** Modbus / RTU via RS485
- ⚙️ **COLOURS:** Yellow: RAL 1016 matt - Black: RAL 9005 matt

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▶ **INDIPENDENT SF₆ LEAK
DETECTION SYSTEM**
LEK104-03

PROVIDED DOCUMENTS

📄 Operating manual

CERTIFICATES ISSUED

📄 EC Certificate of Conformity



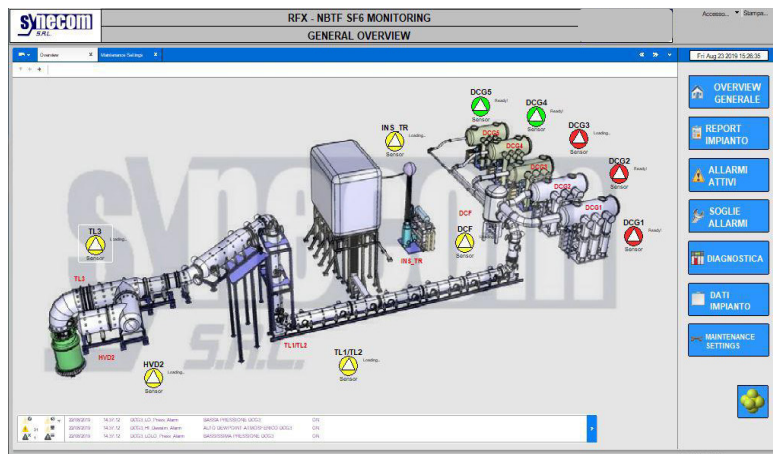
▶ F-GREEN

LEK101-01

WHAT IS F-GREEN?

PERMANENT MONITORING SYSTEM FOR SF6 GAS STATUS PARAMETERS

- Ideal for: **leakage Detection and permanent monitoring** of plant's status parameters
- Data collection via one or more state of the art **sensors** providing a wide range of measurement
- **Prevent break-down** of GIS, AIS and Particle Accelerators
- **Optimize life-time** of the plant
- Generate **automatic Reports** to EU standards
- Full **remote management**



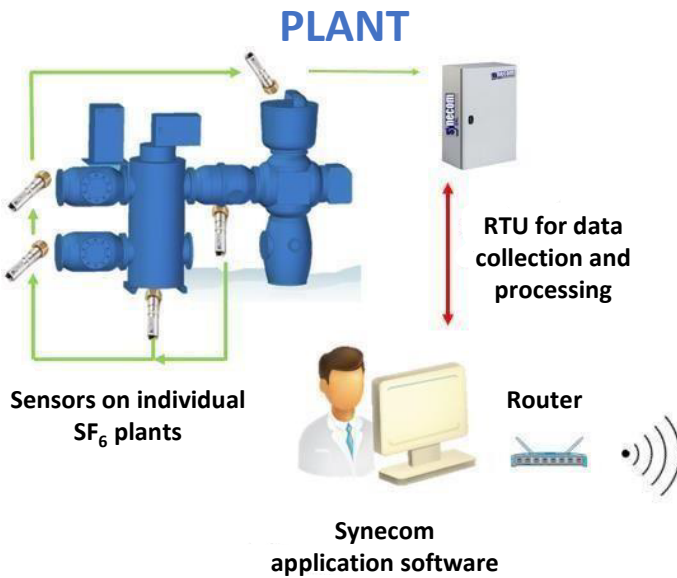
FUNCTIONS

- ☑ Managing each status parameter independently
- ☑ Real-time reports of the F-Gas status parameters, which guarantee:
 - ✓ Forecasting of plant out of service
 - ✓ Prediction of deterioration of plant quality (to avoid black-out risk/costly maintenance)
- ☑ Precise monitoring of plant's leak trends
- ☑ Accurate service planning of the pressure seal parts
- ☑ Setting alarm thresholds
- ☑ Setting maintenance work
- ☑ Tracking electrical faults

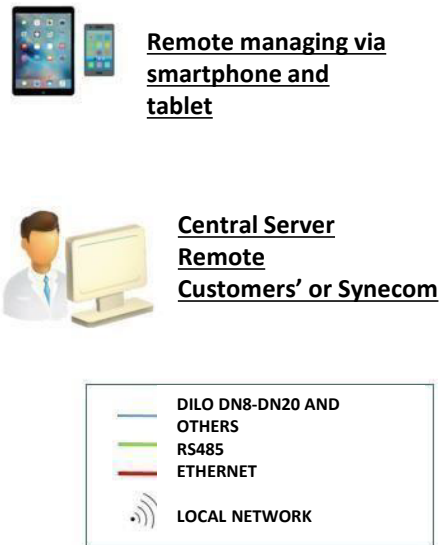


F-GREEN
LEK101-01

SYSTEM CONFIGURATION



REMOTELY MANAGED



PARAMETERS MONITORED BY F-GREEN

The main state parameters of the SF₆ gas detected are:

- Dew point
- Temperature
- Pressure
- Density

DEW POINT MEASUREMENT

Dew Point monitoring helps prevent:

- Possible failures of the system
- Degradation of primary components
- Progressive loss of performance
- Electrical faults can be tracked and recorded, allowing the operator to analyse and interpret the fault even after the event

Sensor properties		
Report ✕		
DCG5		
Sensor		
Temperature	30,46	°C
Abs. Pressure	3,94	bara
Density	23,76	kg/m ³
Atm. Dewpoint	-6,27	°C(atm.)
Dewpoint	11,99	°C
Humidity	3566	ppm _v
STATUS: OK		



▶ F-GREEN

LEK101-01

TEMPERATURE MEASUREMENT

SF₆ gas temperature monitoring ensures proper equipment operation, particularly in situations of

- too high temperature
- too low temperature

Prevents shutdown of the plant caused by:

- rupture of calibrated fracture discs (high T)
- gas condensation and dielectric decay (low T)

PRESSURE MEASUREMENT

Pressure monitoring helps prevent system shutdown caused by external temperature fluctuations or load variations of the plant itself.

It can be managed through multilevel alarms or, in cases of selective systems, with the opening of the plant section concerned.

DENSITY MEASUREMENT

Density monitoring allows you to constantly detect and record the absence of losses and/or of their projected time if they arise.

Allows you to predict a disruption well in advance, reducing the time of the plant being out of service and minimising the release of SF₆ into the atmosphere.

F-GREEN: TYPES OF OPERATION

Self-diagnosis software provides sensor functionality monitoring, communication network, CPU, memory and relative components.

Two types of system:

NON selective monitoring system (standard performance)

Selective monitoring system (high performance)

NON-SELECTIVE TYPE (STANDARD PERFORMANCE)

- The system delivers regular alarm signals generating trend and reporting algorithms
- A sensor is installed non-invasively on board a three-way valve that interfaces to the filling and refilling valves of the individual plant compartments
- Each sensor is connected by serial communication
- Sensors can be grouped on multiple lines

SELECTIVE TYPE (HIGH PERFORMANCE)

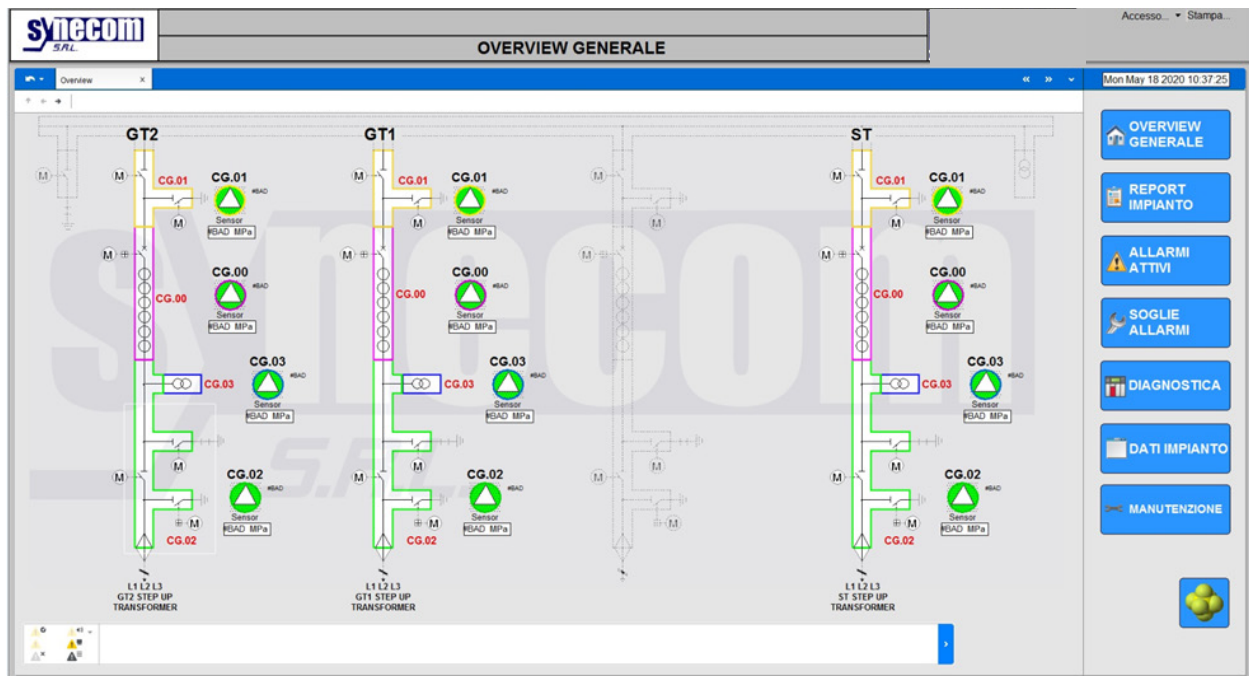
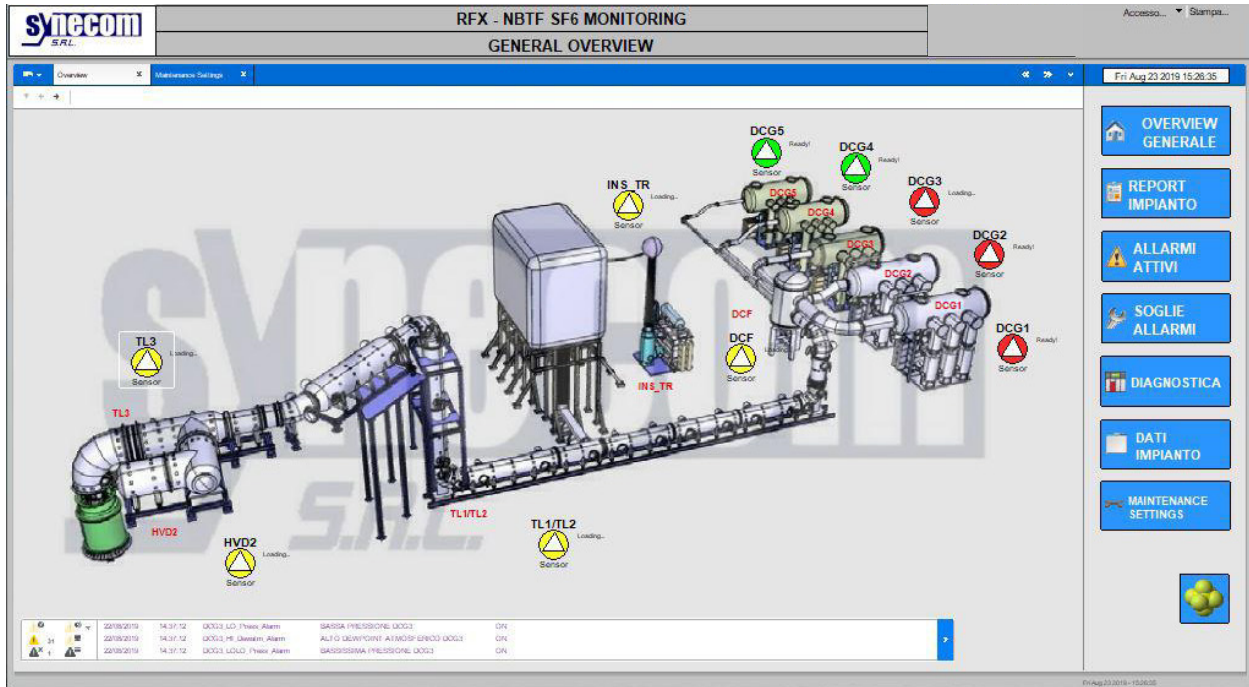
The system operates in the entire supply chain and actively intervenes in the chain "cause effects" of plant management, providing alarm, blocking or opening of the same.

The sensors are connected in a fibre-optic loop network, ensuring:

- Increased speed of information transmission and degree of tolerance failure
- Operational continuity in case of accidental fibre cutting



F-GREEN
LEK101-01



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F-GREEN
LEK101-01

REPORT GENERATION

Generate automatic reports on the degree of gas emissions produced by each compartment.

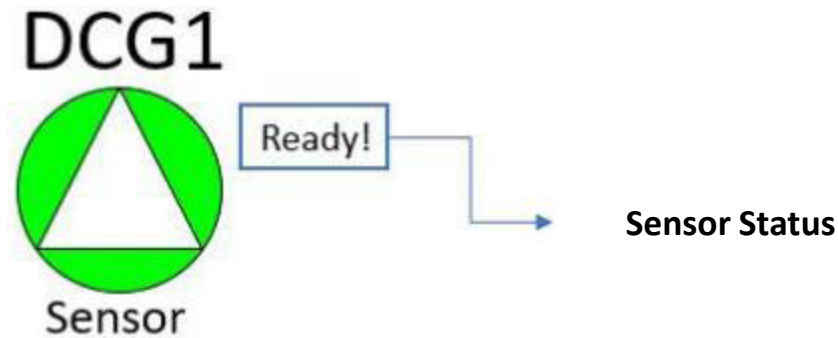
Automatic completion EU format fac simile for annual loss declaration in accordance with EU 2024/573, EU1191/2014 and DPR 146/2018.

ALARM SIGNALS AND INTERNAL SELF-DIAGNOSIS

The status of the plant is managed through distributed traffic light logic for each single system section.

The tracking icons are placed on the reproduction of the plant layout:

- Green icon: compliance of values;
- Orange icon: one or more measurement parameters have entered the pre-alarm threshold;
- Red icon: a parameter has entered the block or trip zone (if permitted);
- Yellow icon: indicates an anomaly detected during continuous cycles of self-diagnosis of the system.

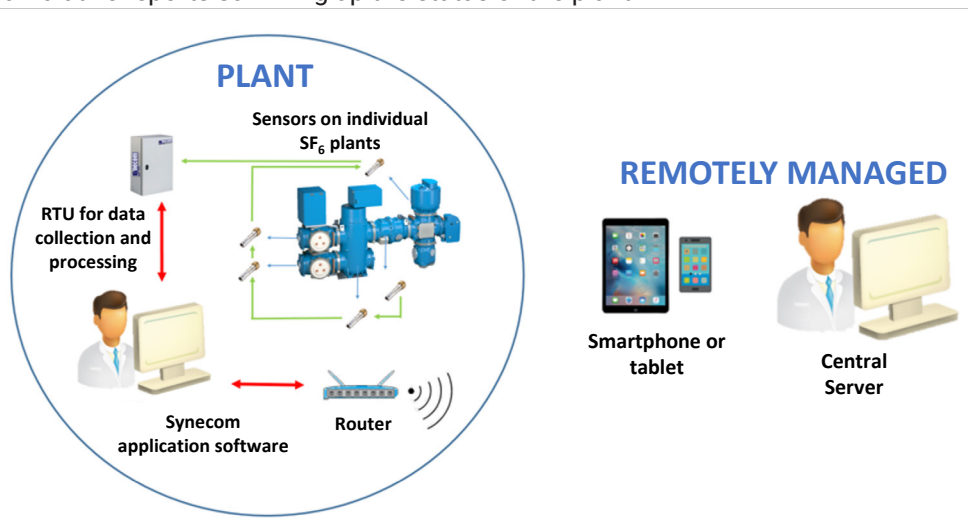


REMOTE CONNECTION

Data is transmitted to a remote location (smartphone/through the main communication protocols) and Modbus Over TCP/IP, IEC60870 5 104

Data management of multiple Operating Units on a central server (customer server or Synecom)

- Monitoring and interaction per plant
- Generation of cumulative reports summing up the status of the plant





ACCESSORIES

► SF₆ SCALE

SCA101-01_B_200

DESCRIPTION

- Ideal for: identify the amount of SF₆ gas Re-filled in an equipment
- **Certified weighing system** for easy data Reporting required by EU 2024/573
- **Compact** design and two solid rubber **wheels** for smooth and safe handling of SF₆ gas cylinders
- **Bluetooth** interface to exchange data between the electronic scale and the computer in a simple and fast way



TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 520 mm - Width: 490 mm - Height: 1005 mm
- ⚙️ DIMENSIONS OF THE FOLDED STRUCTURE: Length: 300 mm - Width: 490 mm - Height: 920 mm
- ⚙️ PLATFORM DIMENSIONS: Length: 300 mm - Width: 300 mm
- ⚙️ WEIGHT: 19,7 kg
- ⚙️ PROTECTION DEGREE: IP67
- ⚙️ WORKING TEMPERATURE: -10 ÷ +40 °C
- ⚙️ FRAME MATERIALS: Alluminum - Steel
- ⚙️ COLOURS: Body: unpainted alluminum - Yellow: RAL 1016 matt, Black (steel frame's part): RAL 9005 matt



▶ **SF₆ SCALE**
SCA101-01_B_200

STANDARD EQUIPMENT

Backlit LCD display IP68 lb/kg with integrated battery
charger 220 ÷ 230 V, 50/60 Hz

Bottle scale 0 - 200 kg (sensitivity ±10 g)

Bluetooth connection

Rubber wheels ø 160mm

Cylinder fixing chain

OPTIONAL ACCESSORIES

☆ REF101-XX: Refilling kits

CERTIFICATES ISSUED

📄 Calibration certificate of the weighing system issued
by an accredited metrology laboratory (0 - 180 kg)

PROVIDED DOCUMENTS

📄 Operating Manual



DIGITAL PRESSURE GAUGE KIT

MAV101-01

DESCRIPTION

- Ideal for: **Measure pressure values** via an integrated digital display
- Equipped with a temperature compensated precision pressure gauge with PTFE tube and DN8 and DN20 coupling valves



STANDARD EQUIPMENT

Digital precision pressure gauge

Manometer rubber protection

Pressure gauge calibration certificate

Highly flexible PTFE tube. Length: 600 mm

Quick coupling connection

DN8 adapter for quick coupling

DN20 adapter for quick coupler

Carrying Case

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

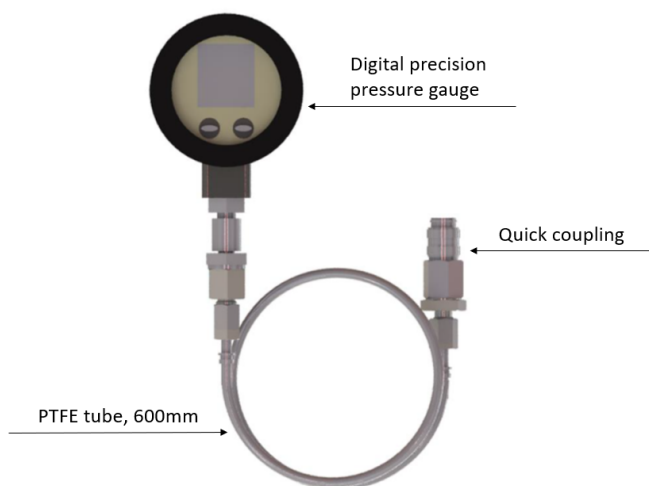
📄 Gauge traceability Certificate

📄 Pressure gauge calibration Certificate



DIGITAL PRESSURE GAUGE KIT MAV101-01

COMPONENTS DESCRIPTION



DIGITAL PRECISION PRESSURE GAUGE



TECHNICAL SPECIFICATIONS

- ⚙️ PRESSURE RANGE: 1-11 bar abs
- ⚙️ ACCURACY: 0.1% FS standard - 0.2% FS max
- ⚙️ SERVICE/OPERATING TEMPERATURE: -20 ... 70 °C / 0 ... 50 °C
- ⚙️ POWER SUPPLY: 3V battery, type CR 2430
- ⚙️ BATTERY LIFE: 1,000 hours of continuous operation
- ⚙️ PROTECTION, CEI 529: IP65



► **DIGITAL PRESSURE GAUGE KIT**
MAV101-01

ADAPTERS FOR DIGITAL SAMPLE PRESSURE GAUGE KIT

VAL102-50-V: DN8 MALE ADAPTER QUICK COUPLING - DN8 COUPLING VALVE

- ✔ Connection1: Male quick coupling
- ✔ Connection 2: DN8 female coupling valve M26x1,5
- ✔ PN35
- ✔ Materials: Body: Brass - Quick coupling: Chromed brass



VAL103-50-V: DN20 MALE ADAPTER QUICK COUPLING - DN20 COUPLING VALVE

- ✔ Connection1: DN20 female coupling valve M45x2
- ✔ Connection 2: Male quick coupling
- ✔ PN35
- ✔ Material: Body: Brass - Quick coupling: Chromed brass



DIGITAL VACUOMETER KIT

MAV102-01

DESCRIPTION

- Ideal for: accurately **determine the vacuum** contained in the equipment after complete recovery of SF₆ gas or complete air evacuation
- **Digital transmitter** with capacitive sensor and ceramic membrane
- **High stability**
- **Completely safe** thanks to self-diagnostic functions



TECHNICAL SPECIFICATIONS

- ⚙️ POWER SUPPLY: 2x9V battery
- ⚙️ RANGE: 0-400 mbar
- ⚙️ CLASS: 0.1
- ⚙️ PROCESS TEMPERATURE: -20 to +150°C
- ⚙️ AMBIENT TEMPERATURE: -40 to +85°C
- ⚙️ MAXIMUM OVERPRESSURE: 2 bar
- ⚙️ CASE DIMENSIONS: Length: 336 mm - Width: 300 mm - Height: 148 mm

STANDARD EQUIPMENT

DN8 coupling valve

DN20 coupling valve

Digital vacuumeter

Plastic case

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▶ **DIGITAL VACUUM METER KIT**
MAV102-01

CERTIFICATES ISSUED

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

📄 Vacuumeter Calibration Certificate

PROVIDED DOCUMENTS

PROVIDED DOCUMENTS

📄 Use and maintenance manual



▶ SF₆ INERTISATION KIT

INT101-01

DESCRIPTION

- **Properly remove the toxic products** of decomposed SF₆ from all equipment
- **Total safety** for the operator and the environment according to EU Regulations
- To be **used only and exclusively by licensed and qualified personnel** according to EU2015/2066



STANDARD EQUIPMENT

1 x case (58x38x40 cm)

1 x kit: Face mask with active carbon filter

2 x tyvek disposable coverall

5 x pairs of disposable overshoes

1 x breathing half mask

1 x protective goggles

1 x valve (breath in and out) for half breathing mask

2 x pairs of Safety gloves

5 x pairs of Gloves made of cotton stockinet

1 x plastic barrel

1 x pack of refuse sacks

2 kg of cotton rags

1 kg of Sodium carbonate

1 x pack of red-white indicator paper

2 x brushes



▶ SF₆ VACUUM CLEANER INT102-01

DESCRIPTION

- **Properly remove toxic products** of decomposed SF₆ from all every equipment
- **Total safety** for the operator and the environment according to EU Regulations
- To be **used only and exclusively by licensed and qualified personnel** according to EU2015/2066



TECHNICAL SPECIFICATIONS

- ⚙️ POWER: 2400 W max
- ⚙️ POWER SUPPLY: 220 – 240 V
- ⚙️ SUCTION: 2500 mm H₂O
- ⚙️ AIR FLOW RATE: 430 m³/h
- ⚙️ BASKET CAPACITY: 62 litres
- ⚙️ LENGTH OF POWER CABLE: 8,5 m
- ⚙️ MAIN FILTER: HEPA H13 cartridge
- ⚙️ BAG: in non-woven fabric with safety valve
- ⚙️ FILTERING SURFACE: 12000 cm²



▶ **SF₆ VACUUM CLEANER**
INT102-01

STANDARD EQUIPMENT

2,5 m hose Ø 38 mm

Nr. 2 x 50 cm aluminium-plastic tubes

Hose with air adjustment

Dust brush

Flat lance

Brush

Reduction

CERTIFICATES SUPPLIED

📄 Certificate of conformity

DOCUMENTS SUPPLIED

📄 Operating manual



▶ THERMAL BLANKET FOR SF₆ GAS CYLINDERS

COP101-01

DESCRIPTION

- Ideal For: **Avoiding the freezing effect** of gas expansion during the Refilling process
- **No interruption** during the Refilling process



VERSIONS AVAILABLE

COP101-01	Thermal Blanket for SF ₆ Gas Cylinders
COP101-02	Thermal Blanket for 600lt SF ₆ Gas Tank
COP102-01	Thermal Blanket customized for Tanks

TECHNICAL SPECIFICATIONS FOR COP101-01 COP101-02 AND COP102-01 ON REQUEST

- ⚙️ POWER SUPPLY: 220-230 V AC 50/60 Hz
- ⚙️ INTERNAL DIMENSIONS: 630 mm x 350 mm
- ⚙️ EXTERNAL DIMENSIONS: 880 mm x 400 mm
- ⚙️ POWER: 430 W
- ⚙️ MAXIMUM TEMPERATURE: 55°C
- ⚙️ THERMAL BLANKET BUILT WITH FIREPROOF AND/OR SELF-EXTINGUISHING MATERIALS



► **THERMAL BLANKET
FOR SF₆ GAS CYLINDERS**
COP101-01

MATERIALS

Polyester inner fabric WR FR colour blue

Aluminium layer

Resistors

Adhesive aluminium layer

Mineral wool insulation SP10 mm

COMPONENTS

Double internal safety thermostat at 60°C

Power cable: 2.5 m with industrial plug IEC309

Protected internal connections

Velcro fastening of the thermal blanket

CERTIFICATES ISSUED

📄 CE Certification

DOCUMENTS PROVIDED

📄 Operating manual



SF₆ INTEGRATED FILTER

ACC101-01

DESCRIPTION

- Designed to **Recycle dirty SF₆** gas
- **Accurately remove** moisture and SF₆ gas decomposition products such as SO₂, HF, H₂S
- Certified in accordance with the Pressure Equipment Directive (**PED 2014/68/EC**)
- More units can be aligned in parallel or in series for **improved efficiency**



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 740 mm - Width: 120 mm - Height: 210 mm

⚙️ WEIGHT: 20 kg

⚙️ MAXIMUM PRESSURE: 50 bar

⚙️ COLORS: Yellow: RAL 1016 matt, Black: RAL 9005 matt

STANDARD EQUIPMENT

DN20 Coupling Valves

Particulate Filter

Filter Products for moisture and decomposed SF₆ gas

User and maintenance manual



▶ **SF₆ INTEGRATED FILTER**
ACC101-01

OPTIONAL ACCESSORIES

- ☆ **TBS101-02:** 2m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-03:** 5m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-04:** 10m Rubber hose DN8 with DN8 female coupling valves
- ☆ **VAL102-01:** Adapter kit DN8
- ☆ **TBS102-01:** 5m Rubber hose DN20 with DN8 female valves
- ☆ **TBS102-02:** 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03:** 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01:** Adapter kit DN20

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

PROVIDED DOCUMENTS

- 📄 Operating Manual
- 📄 SF₆ safety data sheet

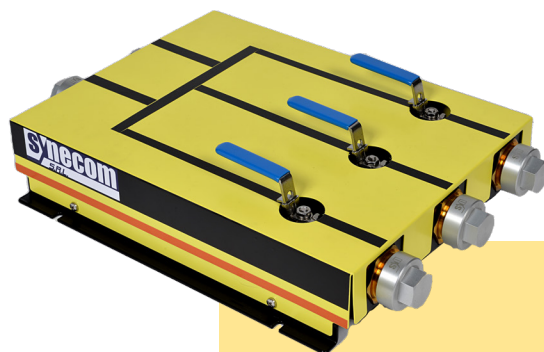


▶ MANIFOLD ACC102-XX

ACC102-01	Manifold 4xDN8
ACC102-02	Manifold 3xDN8 + 1xDN20
ACC102-03	Manifold 4xDN20
ACC102-04	Manifold 4xDN20 + 1xDN8
ACC102-05	Manifold 1xDN40+3xDN20

DESCRIPTION

- **Recover and Refill** gas from/to several compartments **simultaneously** saving time and resources
- Available in **different versions** to meet all compartment needs



TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 500 mm - Width: 360 mm - Height: 120 mm

⚙️ WEIGHT: 14 kg

⚙️ COLOURS: Yellow: RAL1016; Black: RAL9005

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▶ **MANIFOLD**
ACC102-XX

STANDARD EQUIPMENT

3 x ball valves with tap

1 x DN8 molecular seal connection valve

4 x DN20 molecular seal connection valves

OPTIONAL ACCESSORIES

- ☆ **TBS101-02**: 2m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-03**: 5m Rubber hose DN8 with DN8 female coupling valves
- ☆ **TBS101-04**: 10m Rubber hose DN8 with DN8 female coupling valves
- ☆ **VAL102-01**: Adapter kit DN8
- ☆ **TBS102-01**: 5m Rubber hose DN20 with DN8 female valves
- ☆ **TBS102-02**: 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03**: 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01**: Adapter kit DN20

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

PROVIDED DOCUMENTS

- 📄 Operating Manual
- 📄 SF₆ safety data sheet



▶ MANIFOLD "SLIM"

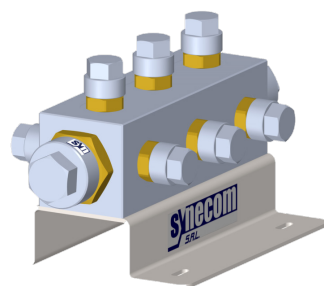
ACC102-06/07

ACC102-06 Manifold 15xDN8 + 2xDN20

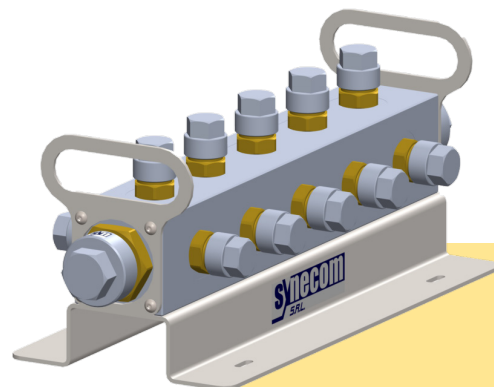
ACC102-07 Manifold 9xDN8 + 2xDN20

DESCRIPTION

- Ideal for: **Recovering and Refilling** SF₆ gas from/to several compartments **simultaneously** saving time and resources
- Available in **multiple versions** to meet all type of equipment



ACC102-07



ACC102-06



▶ **MANIFOLD "SLIM"**
ACC102-06/07

TECHNICAL SPECIFICATIONS

⚙️ Dimensions

Code	Length	Width	Height
ACC102-06	475	176	166
ACC102-07	300	176	152

⚙️ Weight

Code	Weight
ACC102-06	9,6 kg
ACC102-07	5,4 kg

STANDARD EQUIPMENT

ACC102-06

15 x DN8 male molecular sealed valves

2 x DN20 male molecular sealed valves

ACC102-07

9 x DN8 male molecular sealed valves

2 x DN20 male molecular sealed valves



▶ **MANIFOLD "SLIM"**
ACC102-06/07

OPTIONAL ACCESSORIES

- ☆ **TBS101-02:** 2m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-03:** 5m Rubber hose DN8 with DN8 female valves
- ☆ **TBS101-04:** 10m Rubber hose DN8 with DN8 female valves
- ☆ **VAL102-01:** Adaptor kit DN8
- ☆ **TBS102-01:** 5m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-02:** 10m Rubber hose DN20 with DN20 female valves
- ☆ **TBS102-03:** 20m Rubber hose DN20 with DN20 female valves
- ☆ **VAL103-01:** Adaptor kit DN20

CERTIFICATES ISSUED

- 📄 Helium Leak Test Certificate (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

PROVIDED DOCUMENTS

- 📄 Operating Manual
- 📄 SF₆ safety data sheet



▶ DRILLING SYSTEM

ACC107-01

DESCRIPTION

- Ideal for: **recover SF₆ gas from sealed for life compartment**
- Useful when the equipment needs to be disposed in order **not to release SF₆ into the atmosphere**

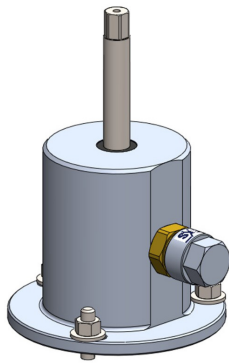


Fig.1

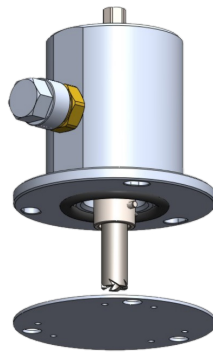


Fig.2



FUNCTIONS

- ☑ The drilling system is composed of a compact case containing the necessary components for operating (Fig. 1)
- ☑ **Drilling** of the sealed compartment through milling bits with Weldon connection

The hermetical link between the drilling system and the sealed compartment is guaranteed by:

- 3 stud bolts sealed to the compartment surface through the welding machine supplied with the kit
- 1 o-ring placed at the base of the tool

- ☑ **Recovery of the SF₆ gas through the Synecom DN8 molecular sealed valve**

During the recovery phase:

- The molecular seal valve ensures no leakage of SF₆ into the environment
- It is not necessary to remove the rotating shaft of the device because the seal is guaranteed by internal seals



▶ DRILLING SYSTEM

ACC107-01

TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS WITH HIGHEST SHAFT (FIG. 1):
Length 124 mm - Width: 140 mm - Height: 190 mm

⚙️ WEIGHT: 1,9 kg

⚙️ DIMENSIONS WITH TRANSPORT CASE AND WELDING MACHINE:
Length 528 mm - Width: 687 mm - Height: 366 mm

⚙️ TOTAL WEIGHT WITH THE EQUIPMENT: around 25kg

⚙️ MILLING BITS STANDARD CONNECTION:

- Connection: Weldon
- Tool fastening: grains

⚙️ DRILL CONNECTION: 13mm key

STANDARD EQUIPMENT

1 drilling tool for sealed compartment

1 template for stud bolts centering

1 milling bits with Weldon connection and drilling diameter of 16mm, maximum cutting depth 25mm

1 welding machine both for M6 and for M8 stud bolts

1 milling bit for M6 stud bolts

2 milling bits for M8 stud bolts

1 replacer for welding machine bits

1 earth clamp

1 soldering gun

50 M8 stud bolts

Transport case



▶ **DRILLING SYSTEM**
ACC107-01

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

📄 EC Declaration of conformity

DOCUMENTATION PROVIDED

📄 Operating manual



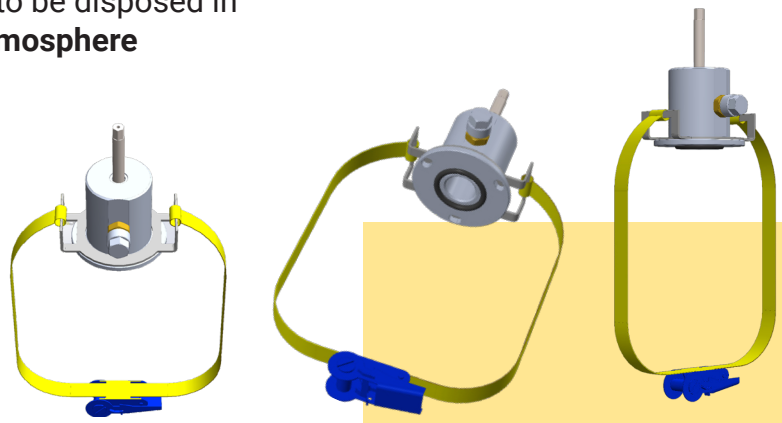
DRILLING SYSTEM

(FOR NON-METALLIC SEALED FOR LIFE COMPARTMENT)

ACC107-02

DESCRIPTION

- Ideal for: **recover SF₆ gas from non-metallic sealed for life compartment**
- Useful when the equipment needs to be disposed in order **not to release SF₆ into the atmosphere**



FUNCTIONS

- ☑ The drilling system is composed of a compact case containing the necessary components for operating
- ☑ **Drilling** of the sealed compartment through milling bits with Weldon connection

The hermetical link between the drilling system and the non-metallic sealed compartment is guaranteed by:

- Ratchet strap
- O-rings

- ☑ **Recovery** of the SF₆ gas through the Synecom DN8 molecular sealed valve

During the recovery phase:

- The molecular seal valve ensures no leakage of SF₆ into the environment
- It is not necessary to remove the rotating shaft of the device because the seal is guaranteed by internal seals
- An integrated sintered filter prevents solid particles from entering the service area



DRILLING SYSTEM

(FOR NON-METALLIC SEALED FOR LIFE COMPARTMENT)

ACC107-02

TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS WITH HIGHEST SHAFT

Length: 124 mm - Width: 140 mm - Height: 190 mm

⚙️ WEIGHT: 1,9 kg

⚙️ MILLING BITS STANDARD CONNECTION:

- Connection: Weldon
- Tool fastening: grains

⚙️ DRILL CONNECTION: 13mm key

⚙️ RATCHET STRAP:

Length: 9000 mm - Width: 50 mm - Thickness: 2 mm

STANDARD EQUIPMENT

1 drilling tool for sealed compartment

1 milling bits with Weldon connection and drilling diameter of 16mm, maximum cutting depth 25mm

1 ratchet strap

Transport case

CERTIFICATES ISSUED📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

📄 EC Declaration of conformity

DOCUMENTATION PROVIDED

📄 Operating manual



▶ VERIFICATION SYSTEM FOR SF₆ DENSITY INSTRUMENTATION

ACC108-01

DESCRIPTION

- Ideal for: **check quickly and easily SF₆ density and pressure instrumentation** mounted on equipment and **record of related parameters detected** in compliance with Article 5 of the EU regulation on fluorinated greenhouse gases*
- In order not to contaminate the instrument and the equipment to be tested the used fluid is always **suplhur hexafluoride (SF₆)**
- **Fully automated operation** through 10.1" touch screen
- **Flexible bag and tank** for storage inside the device
- **Easily transportable**

* Article 5 of the EU regulation on fluorinated greenhouse gases of Nov 5th 2019: the lack of control every six years of loss detection systems entails significant financial penalties



CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)

📄 EC Declaration of conformity

📄 Sensor calibration certificate

DOCUMENTATION PROVIDED

📄 Operating manual

Synecom SRL
Via Carlo Cattaneo, 4 - Stezzano (BG) - ITALIA

synecomsf6.com

**FOR FURTHER
INFORMATION
CONTACT US**



► VERIFICATION SYSTEM FOR SF₆ DENSITY INSTRUMENTATION

ACC108-01

TECHNICAL SPECIFICATIONS

⚙️ **DIMENSIONS:** Length: 428 mm, Width: 555 mm, Height: 306 mm

⚙️ **WEIGHT:** 22kg

⚙️ **POWER SUPPLY:** 220V 50Hz

⚙️ **ACCURACY OF THE PRESSURE SENSOR:** 0,05%FS

⚙️ **ACCURACY MEASURED TEMPERATURE:** ±1 °C

⚙️ **RANGE OF COMPENSATION:** 5...40 °C

⚙️ **MEASUREMENT RANGE:**

Range of measurable pressure: 0...10 bar

⚙️ **OPERATING CONDITIONS:**

Operating temperature: 0...+40 °C

Storage temperature: -10...+60 °C

Maximum test pressure: 10 bar

Maximum tank filling pressure: 10 bar

STANDARD EQUIPMENT

Internal tank:

capacity 0,4L

maximum filling pressure: 10 bar abs

Flexible bag:

capacity 5L

maximum pressure: P atm

6 m hose with quick couplings

Connection: Synecom valve DN8-quick coupling

Connection: Synecom valve DN20-quick coupling

Display 10.1"

Transport case

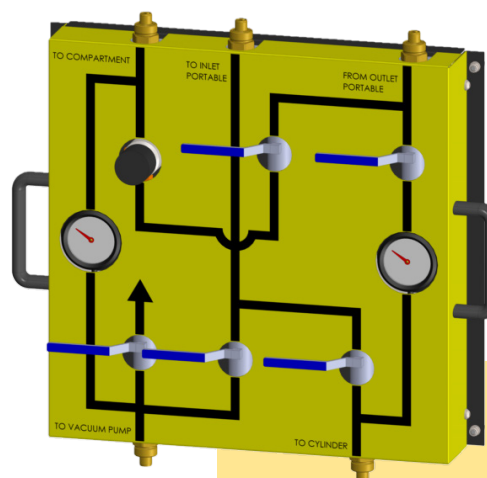
USB stick for data transmission



▶ SF₆ GAS CONTROL PANEL ACC110-01

DESCRIPTION

- Ideal for: **complete SF₆ gas management**
- Used in combination with the portable line it allows to perform **simultaneously the 4 operations** needed for a complete SF₆ gas management: Recovery, Refilling, Filtration and air Evacuation



FUNCTIONS

Used in combination with the portable line it allows a full management of SF₆ gas:

- ☑ SF₆ gas **Recovery** and **Storage** in cylinders in a liquid state up to a pressure of 50bar.
Final attainable absolute pressure in compartment < 1 mbar abs (in compliance with CEI EN62271-4*)
- ☑ **Refilling** of the compartment with SF₆ gas at adjustable pressure directly from the cylinder and refilling of the compartment by using the compressor
- ☑ **Filtration and moisture removal** of SF₆ gas in phase of recovery and refilling
- ☑ **Air evacuation**
Absolute final pressure in the compartment < 1 mbar abs

* the CEI EN62271-4 requires the achievement of 5 mbar abs



▶ SF₆ GAS CONTROL PANEL ACC110-01

TECHNICAL SPECIFICATIONS

⚙️ DIMENSIONS: Length: 520 mm - Width: 560 mm - Height: 120 mm

⚙️ WEIGHT: 15 kg

⚙️ COLOURS: Yellow: RAL1016; Black: RAL9005

STANDARD EQUIPMENT

5 x DN8 stainless steel ball valve with oval handwheel

Analog pressure gauge -1 ÷ 9 bar

5 x DN8 molecular sealed connection valves

Analog pressure gauge 0 ÷ 60 bar

Pressure reducer for refilling

5mt long rubber hose DN8 with DN8 coupling valves

SYSTEM COMPONENTS

☆ CAR109-02: Portable SF₆ compressor

☆ CAR110-01: Portable SF₆ vacuum

☆ CAR111-01: Portable air vacuum

☆ ACC101-01: Integrated filter

OPTIONAL ACCESSORIES

☆ TBS101-02: Rubber hose 2mt DN8 with DN8 female valves

☆ TBS101-03: Rubber hose 5mt DN8 with DN8 female valves

☆ TBS101-04: Rubber hose 10mt DN8 with DN8 female valves

☆ VAL102-01: DN8 adapter kit

CERTIFICATES ISSUED

📄 Leak Test Certificate of the plant (performed by qualified technicians UNI EN ISO 9712 - SNT TC1A)

📄 Certificate of calibration of safety valve

📄 Certificate of calibration of the analog pressure gauge

📄 Certificate INAIL of safety valve





 VALVES AND ADAPTERS

▶ DN8 VALVES WITH FEMALE CONNECTOR

VAL102-03-XX

VAL102-03-P DN8 Valve with Female Flat connector

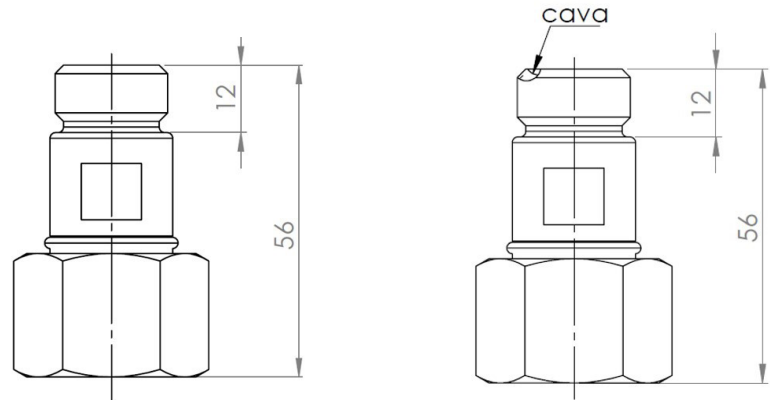
VAL102-03-C DN8 Valve with Female Socket connector

DESCRIPTION

- ✔ Automatic coupling system
- ✔ Pressure-tight and vacuum-tight both when coupled and uncoupled



▶ **DN8 VALVES
WITH FEMALE CONNECTOR**
VAL102-03-XX



	VAL102-03-P [1]	VAL102-03-C [2]
Nominal pressure	50 bar	50 bar
Temperature	-60°C + 80°C	-60°C + 80°C
Leak rate	$\leq 1 \times 10^{-8}$ mbar l/s	$\leq 1 \times 10^{-8}$ mbar l/s
Head type	Flat	Socket
Wrench	SW27	SW27
Material	Brass	Brass
Thread	M20 x 1,5	M20 x 1,5

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)



▶ DN8 VALVES WITH MALE CONNECTOR

VAL102-04-XX

VAL102-04-M20

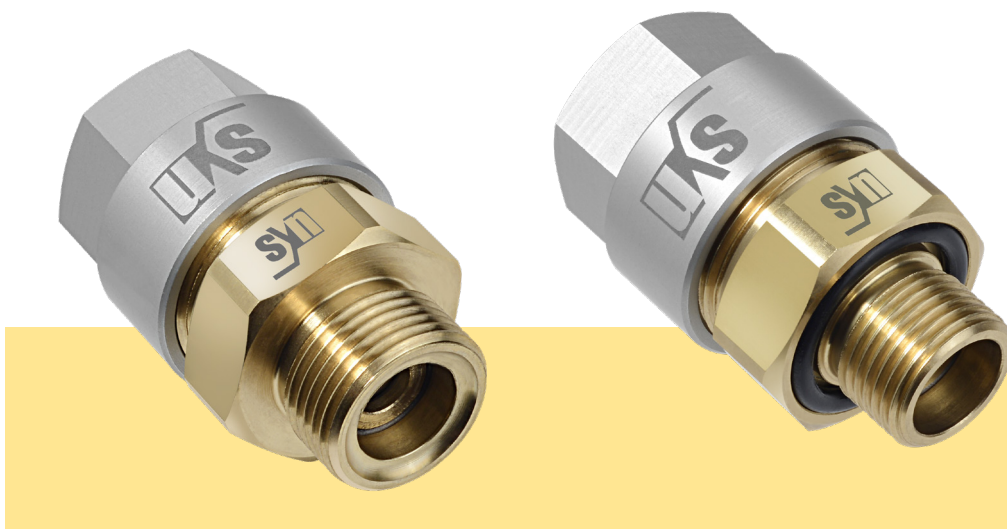
DN8 Valve with Male connector M20x1,5

VAL102-04-G3/8

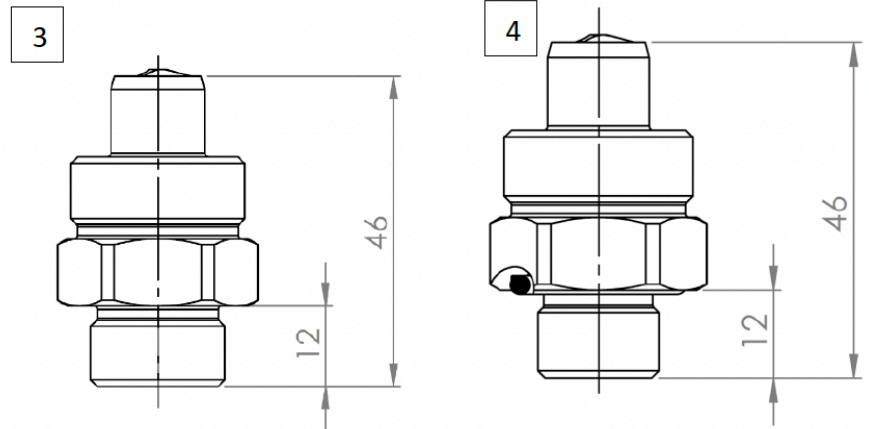
DN8 Valve with Male connector G3/8 + O-ring

DESCRIPTION

- ✔ Automatic coupling system
- ✔ Pressure-tight and vacuum-tight both when coupled and uncoupled



**DN8 VALVES
WITH MALE CONNECTOR**
VAL102-04-XX



	VAL102-03-P [1]	VAL102-03-C [2]
Nominal pressure	50 bar	50 bar
Temperature	-60°C + 80°C	-60°C + 80°C
Leak rate	$\leq 1 \times 10^{-8}$ mbar l/s	$\leq 1 \times 10^{-8}$ mbar l/s
Head type	Flat	Socket
Wrench	SW27	SW27
Material	Brass	Brass
Thread	M20 x 1,5	M20 x 1,5

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)



▶ DN20 VALVES WITH FEMALE CONNECTOR

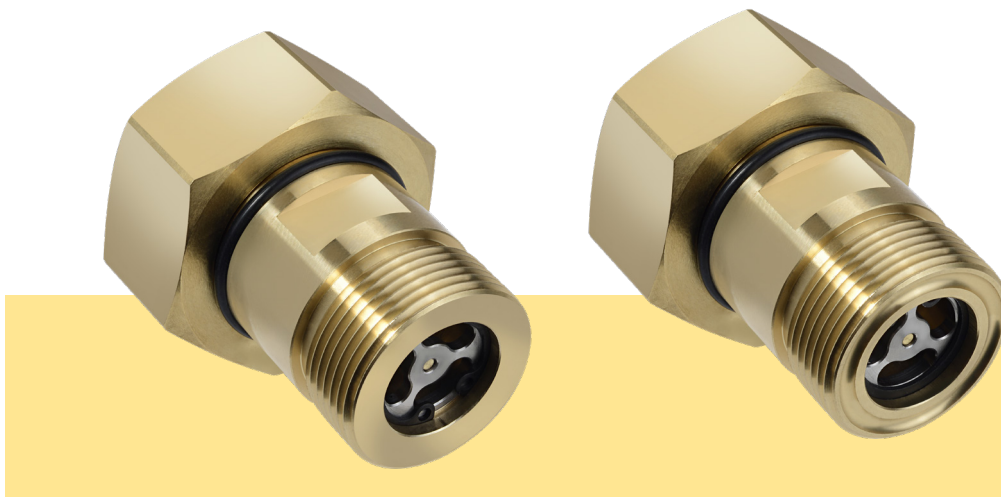
VAL103-02-XX

VAL103-02-P DN20 valve with female connector flat

VAL103-02-C DN20 valve with female connector socket

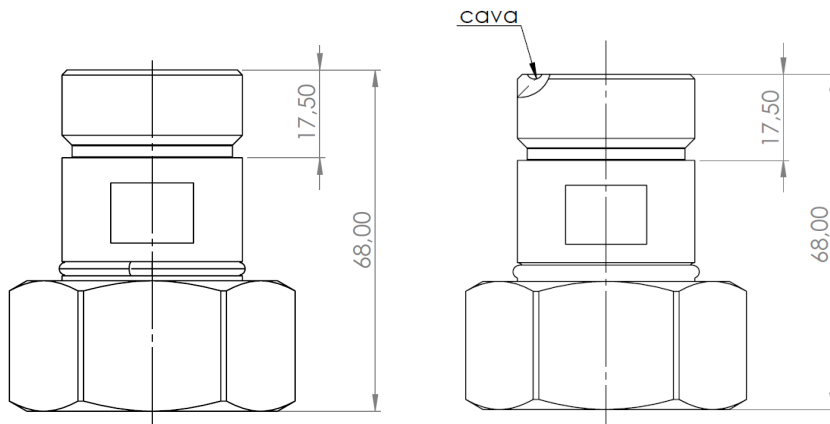
DESCRIPTION

- ✔ Coupling system with automatic closing
- ✔ Pressure-tight and vacuum-tight both when coupled and uncoupled



**▶ DN20 VALVES
WITH FEMALE CONNECTOR**

VAL103-02-XX



	VAL103-02-P [1]	VAL103-02-C [2]
Nominal pressure	50 bar	50 bar
Temperature	-60°C + 80°C	-60°C + 80°C
Leak rate	$\leq 1 \times 10^{-8}$ mbar l/s	$\leq 1 \times 10^{-8}$ mbar l/s
Head type	Flat	Socket
Wrench	SW50	SW50
Material	Brass	Brass
Thread	M36 x 2	M36 x 2

CERTIFICATES ISSUED

Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)



▶ DN20 VALVES WITH MALE CONNECTOR

VAL103-03-XX

VAL103-03-M36-P DN20 valve with flat male connector

VAL103-03-M36-C DN20 valve with socket male connector

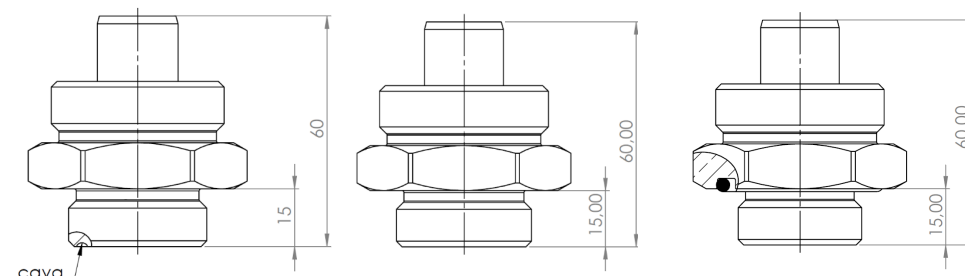
VAL103-03-G1 DN20 male G1 + O-Ring

DESCRIPTION

- ✔ Coupling system with automatic closing
- ✔ Pressure-tight and vacuum-tight both when coupled and uncoupled



▶ **DN20 VALVES
WITH MALE CONNECTOR**
VAL103-03-XX



	VAL103-03-M36-P [3]	VAL103-03-M36-C [4]	VAL103-03-G1 [5]
Nominal pressure	50 bar	50 bar	50 bar
Temperature	-60°C + 80°C	-60°C + 80°C	-60°C + 80°C
Leak rate	$\leq 1 \times 10^{-8}$ mbar l/s	$\leq 1 \times 10^{-8}$ mbar l/s	$\leq 1 \times 10^{-8}$ mbar l/s
Head type	Flat	Socket	Flat
Wrench	SW50	SW50	SW50
Material	Brass	Brass	Brass
Thread	M36 x 2	M36 x 2	G1 x 2

CERTIFICATES ISSUED

📄 Helium Leak Test Certificate
(UNI EN ISO 9712 - SNT TC1A)



SAFETY VALVES

ACC103-01 + ACC103-02

DESCRIPTION

- The **safety valve** consists of: a safety valve fitted directly onto a DN8 coupling valve
- The **value of pressure intervention** is recorded on each valve through an incision on its body and on a label
- Standard **value of calibration**:


ACC103-01 5 bar


ACC103-02 8 bar

Others on request



CERTIFICATES ISSUED

 Safety valve Calibration Certificate

 Safety valve INAIL Certificate



▶ DN8 SF₆ ADAPTER KIT

VAL102-01



COMPONENTS PROVIDED

- ✔ Magrini adapter Ø14
- ✔ Magrini adapter Ø16
- ✔ ASEA adapter
- ✔ DN8 Male coupling valve adapter - DN8 Male coupling valve
- ✔ DN20 Female coupling valve adapter - DN8 male coupling valve
- ✔ DN8 male coupling valve adapter - G1/2"
- ✔ Michelin valve adapter - DN8 male coupling valve



▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01

TECHNICAL SPECIFICATIONS

⚙ CASE DIMENSIONS: Length: 350 mm - Width: 300 mm - Height: 145 mm

⚙ CASE WEIGHT: 5,2 kg

STANDARD EQUIPMENT

Hermetically-sealed carrying case for DN8 adapters

Protective caps for the threads and sealing surfaces of the adapters

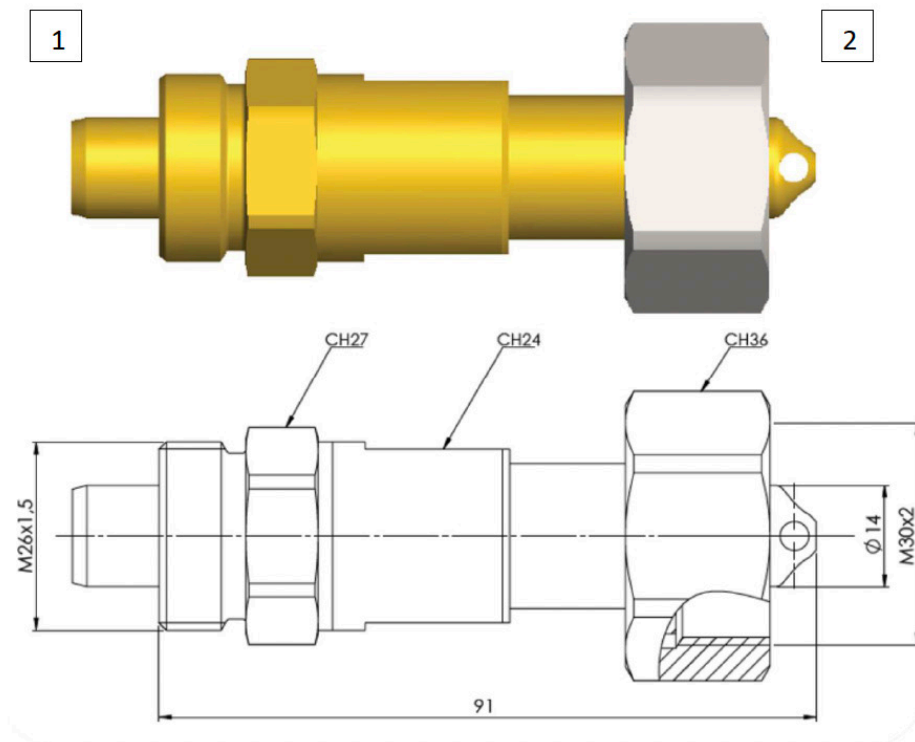
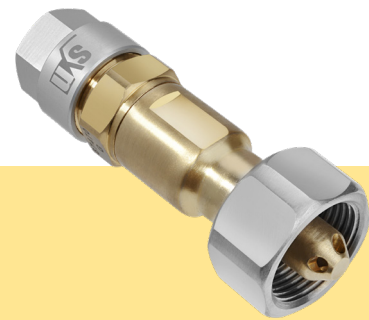


▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01

COMPONENTS DESCRIPTION

VAL102-06-V: MAGRINI Ø14 ADAPTER

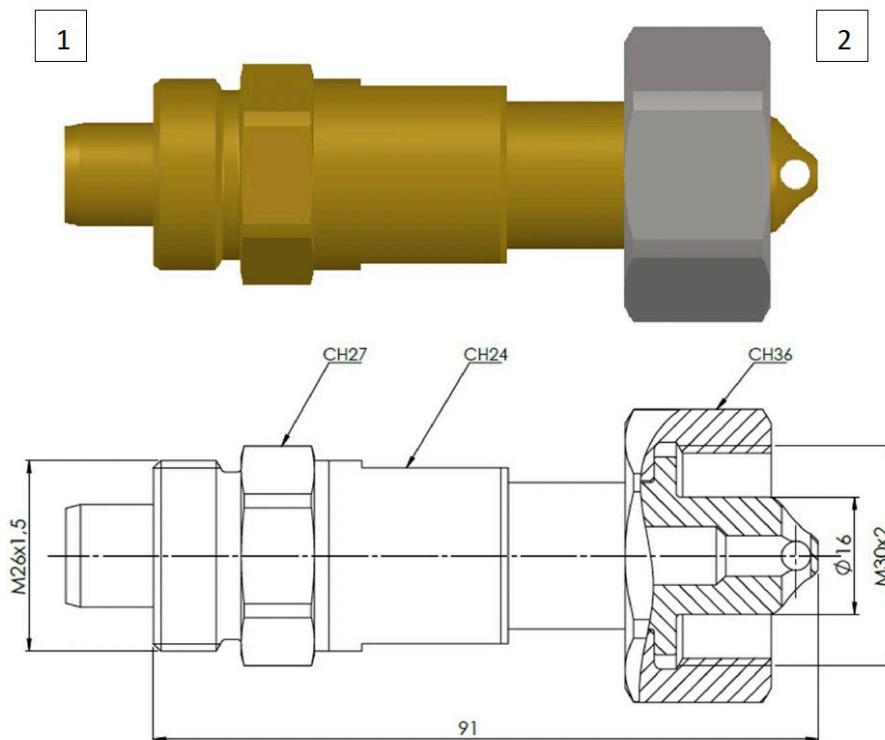
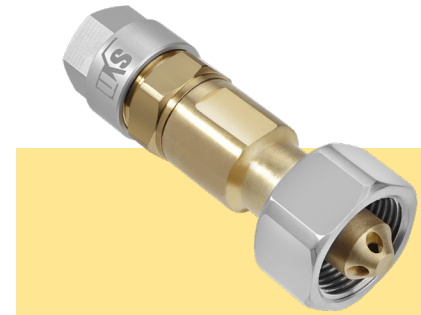
- ✔ Connection 1: Molecular seal connection valve DN8 male M26x1,5
- ✔ Connection 2: Ø14 Magrini connection
- ✔ PN64
- ✔ Materials: Body: Brass - Nut: AISI 304



▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01

VAL102-07-V: MAGRINI Ø16 ADAPTER

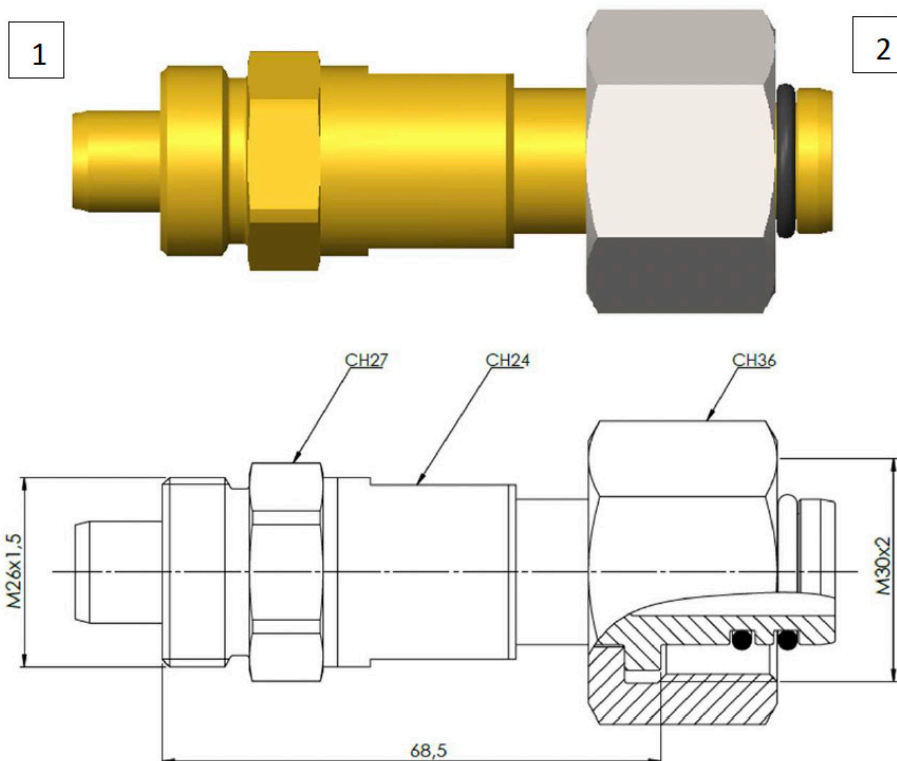
- ☑ Connection 1: Molecular seal connection valve DN8 male M26x1,5
- ☑ Connection 2: Magrini Ø16 connection
- ☑ PN64
- ☑ Materials: Body: Brass - Nut: AISI 304



▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01

VAL102-08-V: COUPLING VALVE ADAPTER DN8 MALE - ASEA

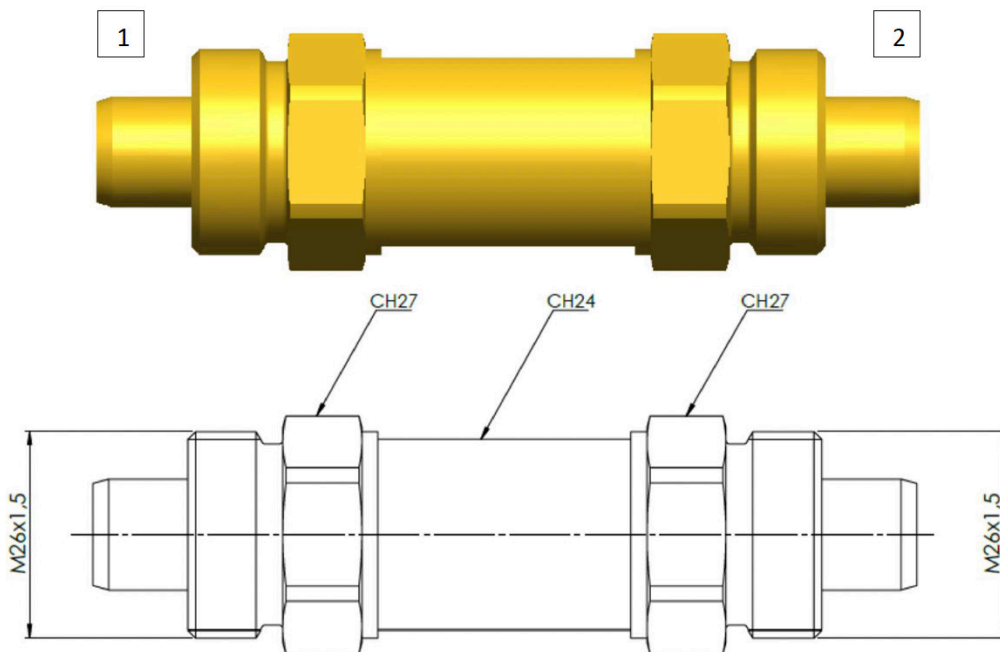
- ✔ Connection1: DN8 Male coupling M26x1,5
- ✔ Connection 2: ASEA connection
- ✔ Materials: Body: Brass



▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01

**VAL102-13-V: COUPLING VALVE ADAPTER DN8 MALE -
COUPLING VALVE DN8 MALE**

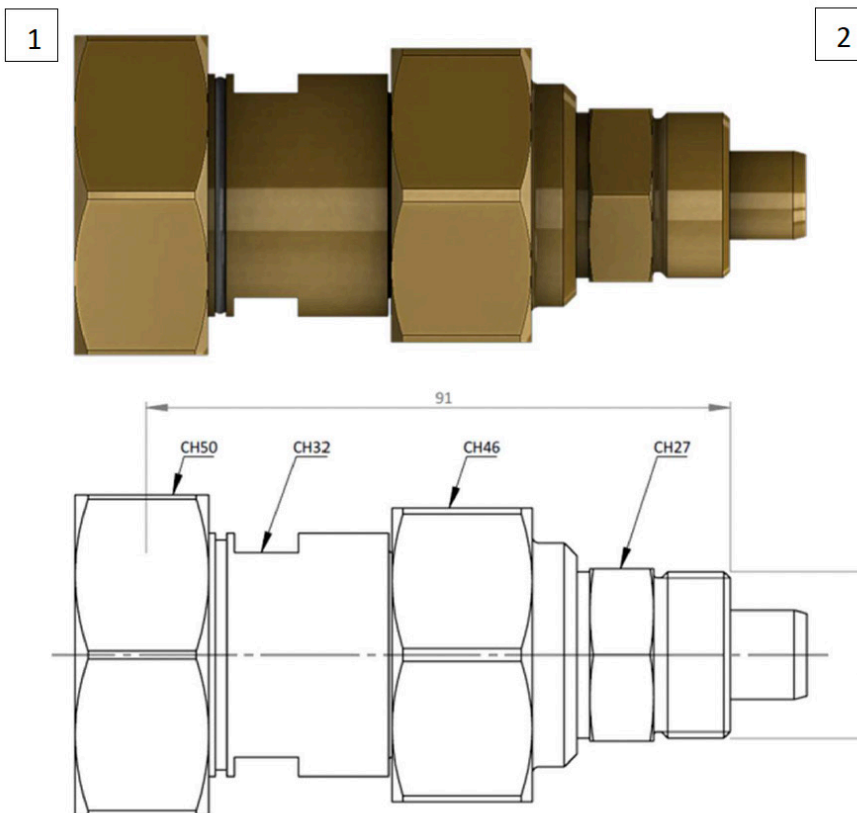
- ✔ Connection1: DN8 male coupling valve M26x1,5
- ✔ Connection 2: DN8 male coupling valve M26x1,5
- ✔ PN64
- ✔ Materials: Brass



▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01⁶

**VAL102-15-V: COUPLING VALVE ADAPTER DN20 FEMALE -
COUPLING VALVE DN8 MALE**

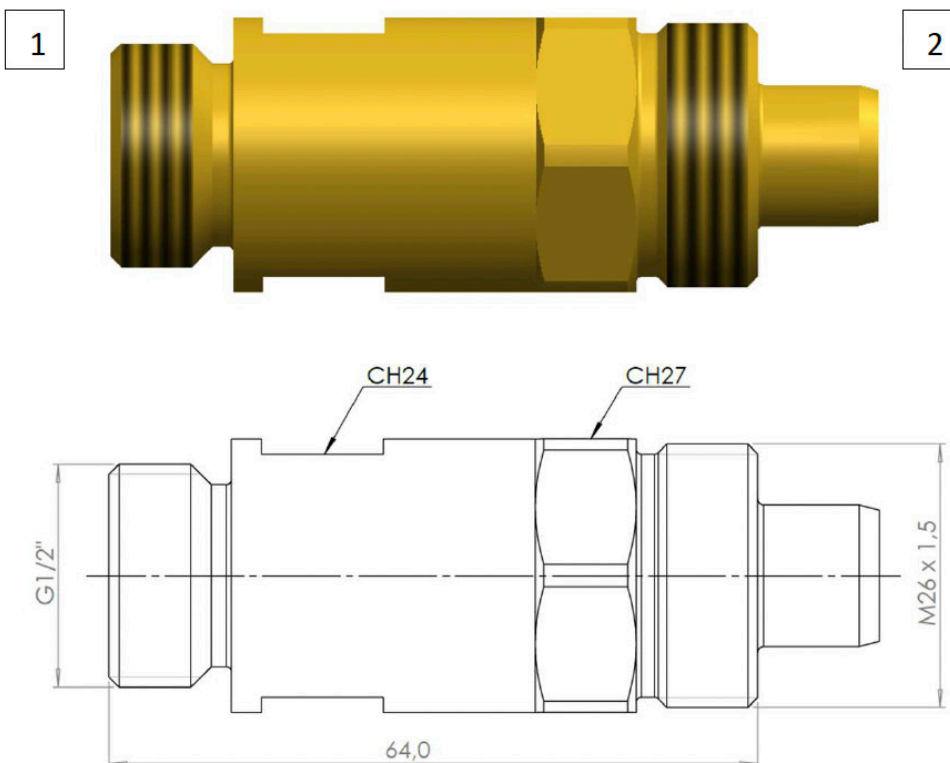
- ✔ Connection 1: DN20 female coupling valve M45x2
- ✔ Connection 2: DN8 male coupling valve 26x1,5
- ✔ PN64
- ✔ Materials: Brass



▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01

VAL102-09-V: COUPLING VALVE ADAPTER DN8 MALE - G1/2"

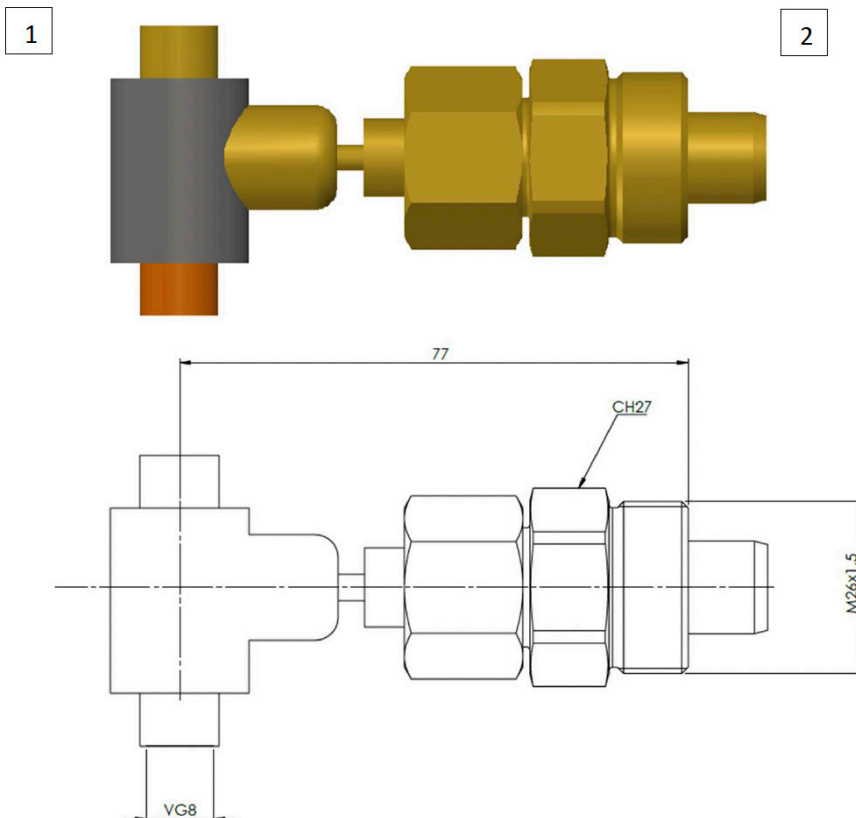
- ✔ Connection1: DN8 male coupling valve M26x1,5
- ✔ Connection 2: G 1/2" male fitting
- ✔ PN64
- ✔ Materials: Brass



▶ **DN8 SF₆ ADAPTER KIT**
VAL102-01

VAL102-02-V: MICHELIN VALVE ADAPTER - COUPLING VALVE DN8 MALE

- ✔ Connection1: Michelin valve
- ✔ Connection 2: DN8 male coupling valve
- ✔ Materials: Body: Brass - Nut: AISI 304



▶ DN20 SF₆ ADAPTER KIT

VAL103-01



STANDARD EQUIPMENT

DN20 Adapter IP67 enclosure

Protective caps for adapter threads
and sealing surfaces

PROVIDED DOCUMENTS

📄 Operating manual

Synecom SRL
Via Carlo Cattaneo, 4 - Stezzano (BG) - ITALIA

synecomsf6.com

**FOR FURTHER
INFORMATION
CONTACT US**

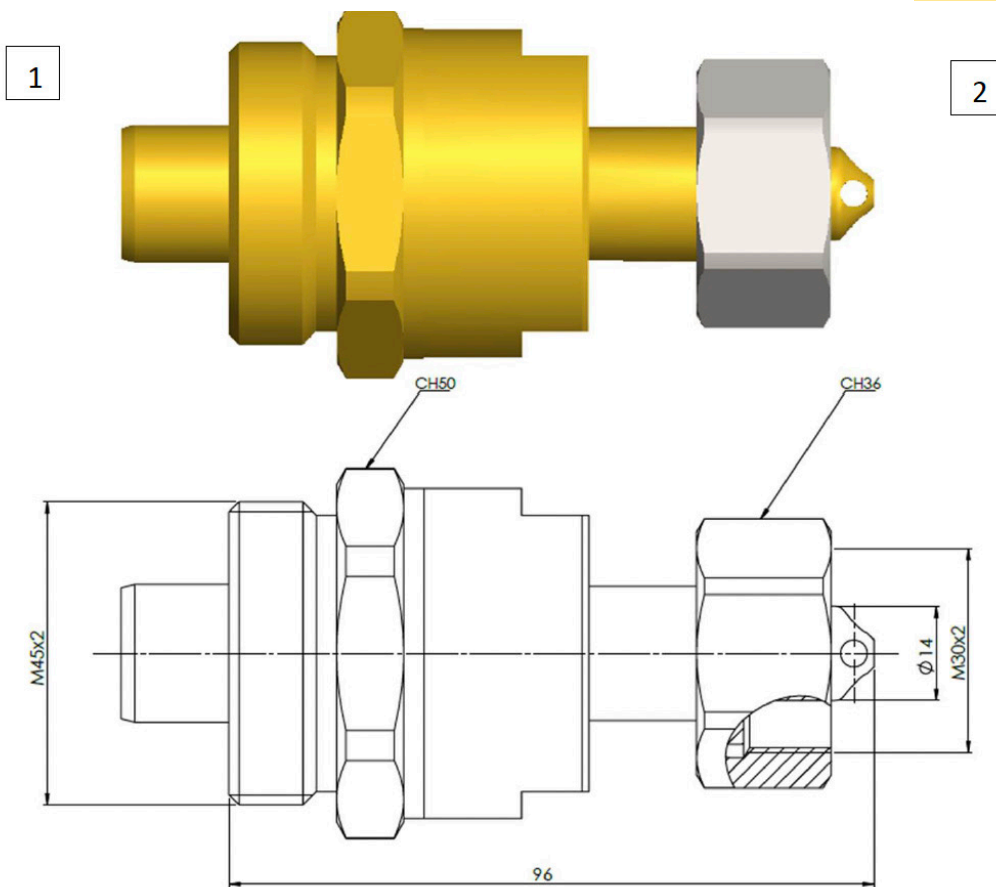


► **DN20 SF₆ ADAPTER KIT**
VAL103-01

COMPONENTS DESCRIPTION

VAL103-05-V: MAGRINI Ø14 ADAPTER

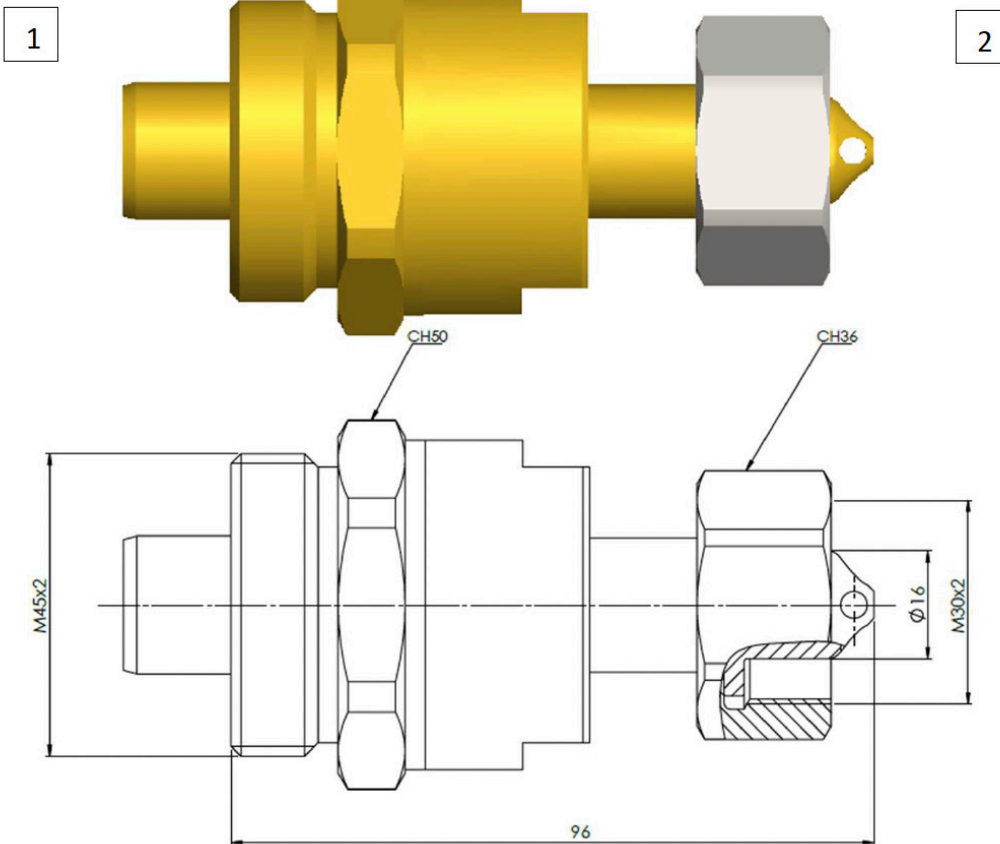
- ☑ Connection 1: DN20 male coupling valve
- ☑ Connection 2: Ø14 Magrini connection
- ☑ Materials: Body: Brass - Nut: AISI 304
- ☑ For SF₆ gas management on compartments
- ☑ PN50



▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

VAL103-06-V: MAGRINI Ø16 ADAPTER

- ✔ Connection 1: DN20 male coupling valve
- ✔ Connection 2: Magrini Ø16 connection
- ✔ Materials: Body: Brass - Nut: AISI 304
- ✔ For SF₆ gas management on compartments
- ✔ PN50



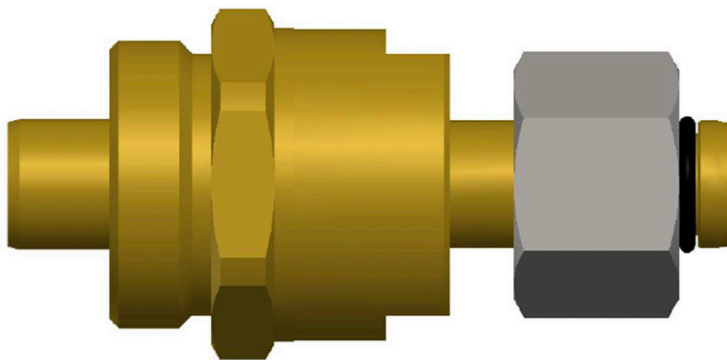
▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

VAL103-07-V: ASEA ADAPTER

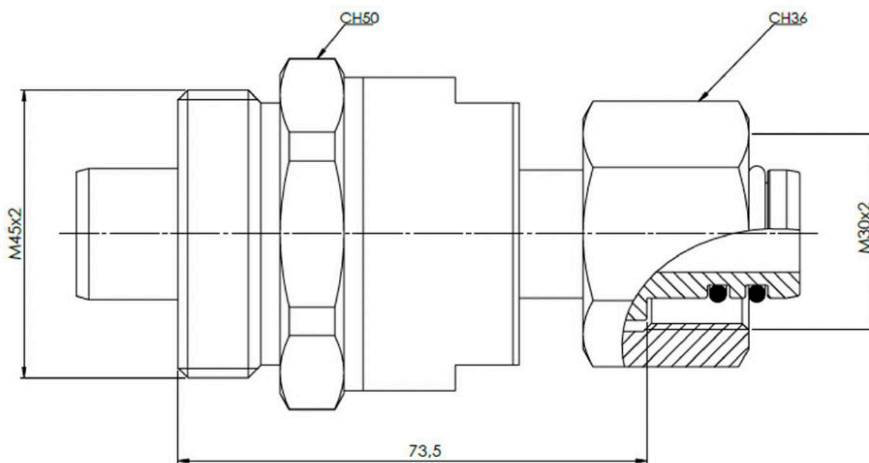
- ✔ Connection1: DN20 male coupling valve
- ✔ Connection 2: ASEA connection
- ✔ Materials: Body: Brass - Nut: AISI 304
- ✔ For SF₆ gas management on compartments
- ✔ PN50



1



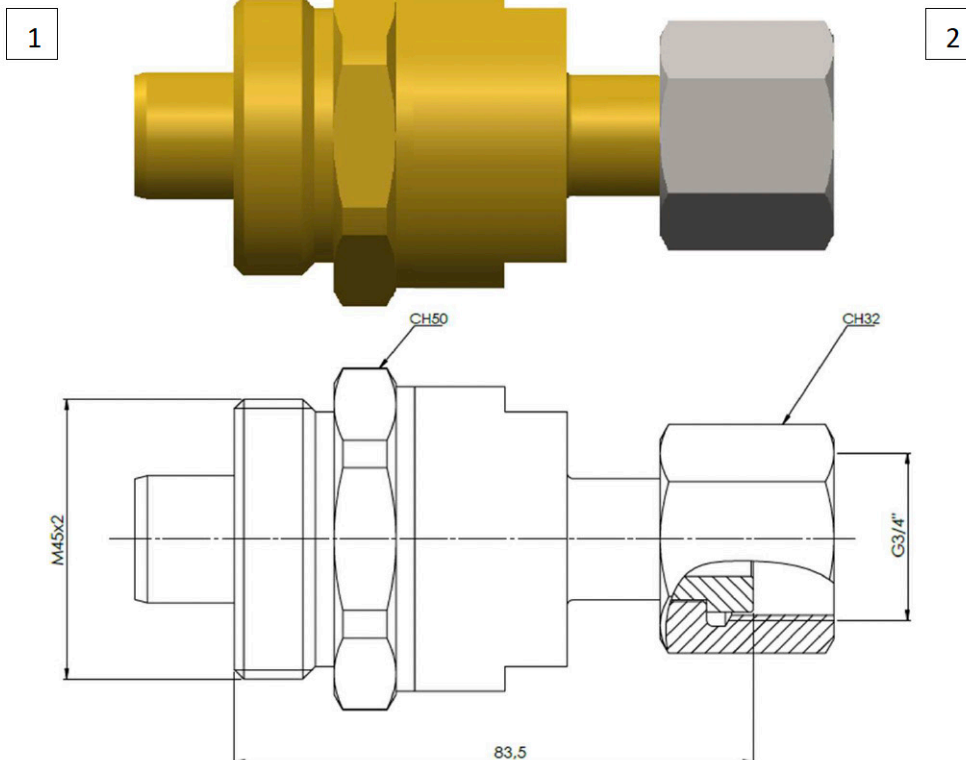
2



▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

VAL 103-09-V: SIEMENS G 3/4" ADAPTER

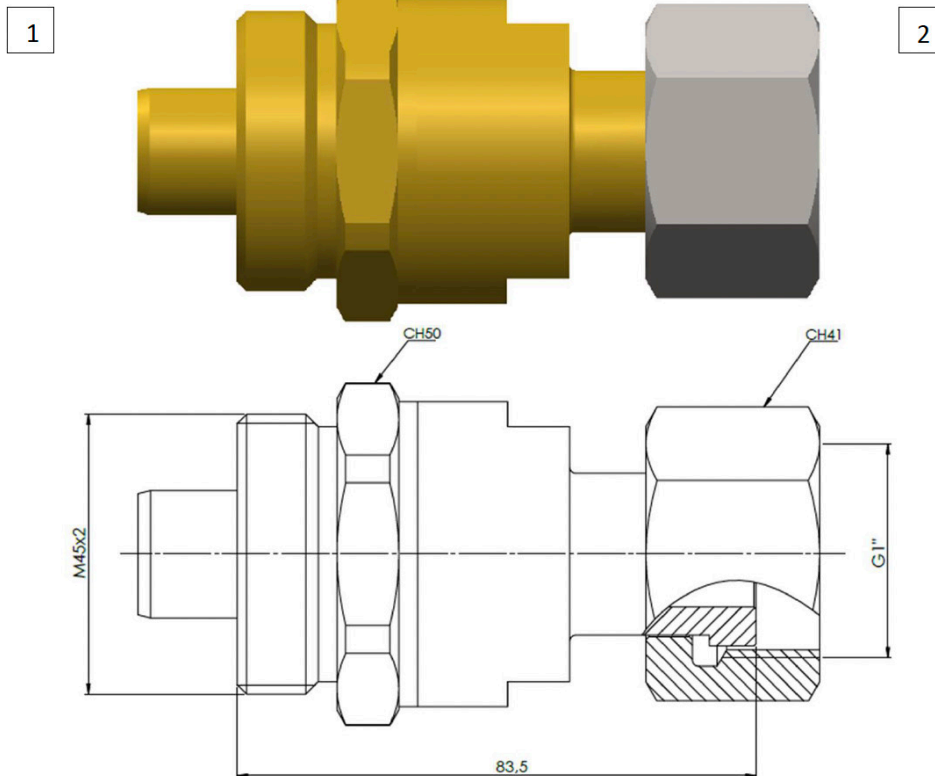
- ✔ Connection 1: DN20 male coupling valve
- ✔ Connection 2: Siemens G 3/4" connection
- ✔ Materials: Body: Brass - Nut: AISI 304
- ✔ For SF₆ gas management on compartments
- ✔ PN50



▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

VAL103-09-V: SIEMENS G 1" ADAPTER

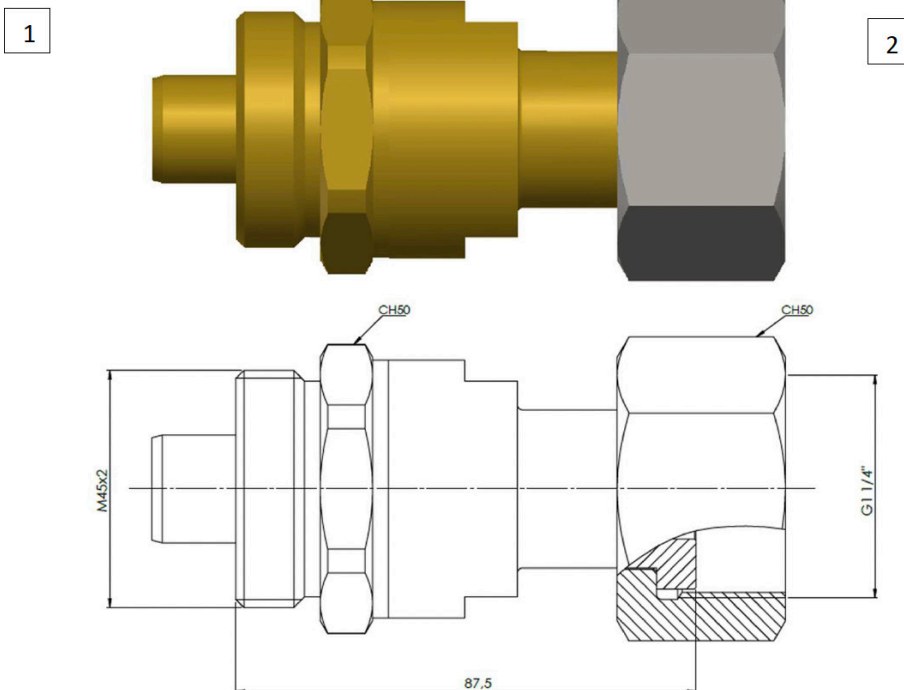
- ✔ Connection1: DN20 male coupling valve
- ✔ Connection 2: Siemens G 1" connection
- ✔ Materials: Body: Brass - Nut: AISI 304
- ✔ For SF₆ gas management on compartments
- ✔ PN50



▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

VAL103-10-V: SIEMENS G 1 1/4" ADAPTER

- ✔ Connection1: DN20 male coupling valve
- ✔ Connection 2: Siemens G 1 1/4" connection
- ✔ Materials: Body: Brass - Nut: AISI 304
- ✔ For SF₆ gas management on compartments
- ✔ PN50

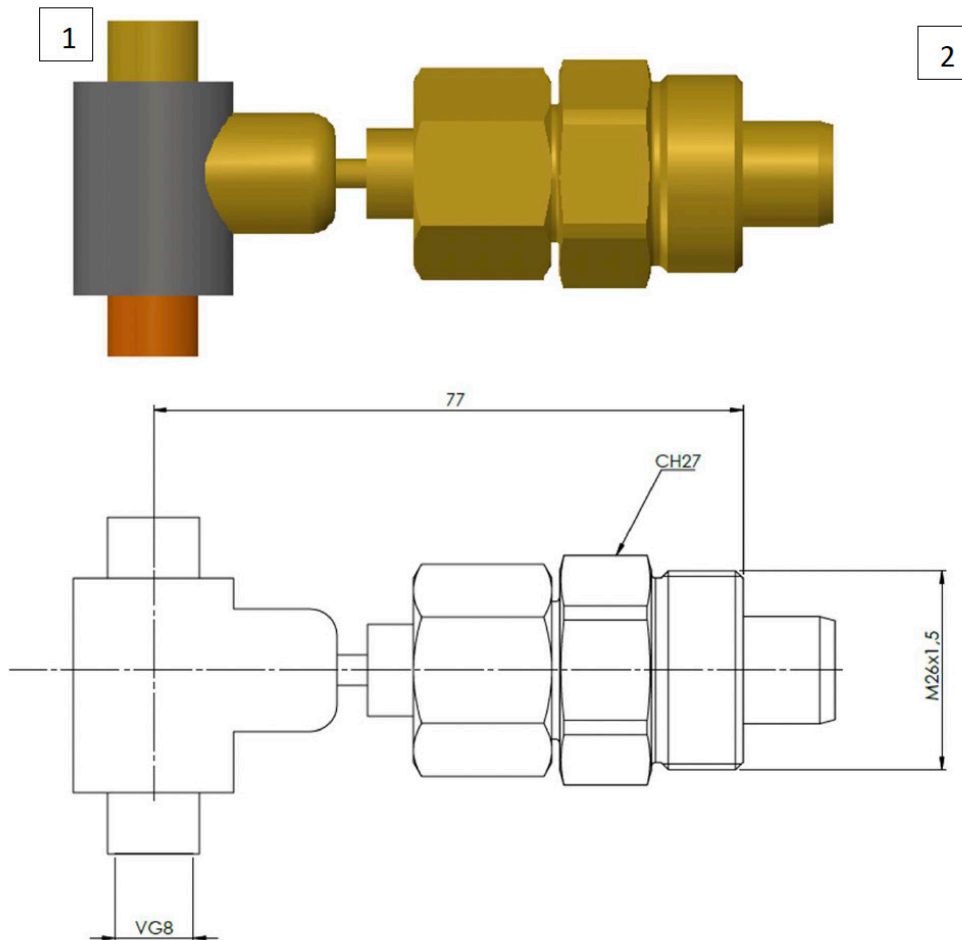


FOR FURTHER INFORMATION CONTACT US

▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

MICHELIN ADAPTER - DN20 MALE

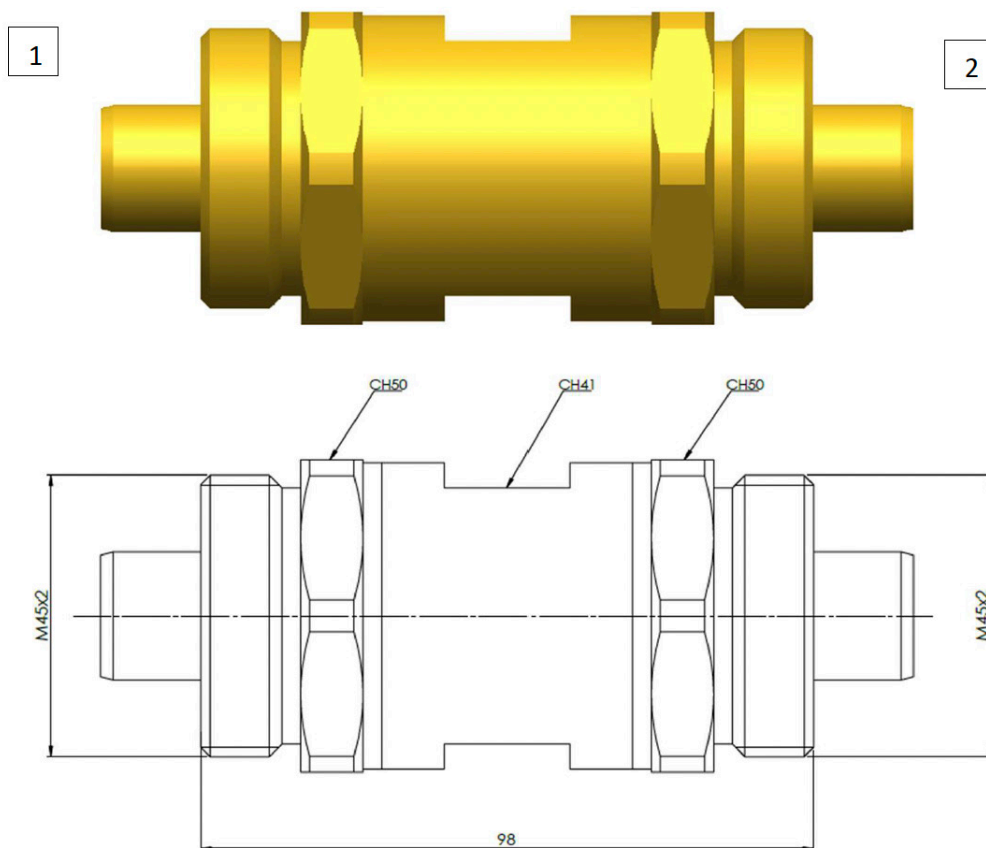
- ✔ Connection1: DN20 male coupling valve
- ✔ Connection 2: Michelin DN20 Male connection
- ✔ Materials: Body: Brass - Nut: AISI 304
- ✔ For SF₆ gas management on compartments



▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

ADAPTER DN20 MALE - DN20 MALE

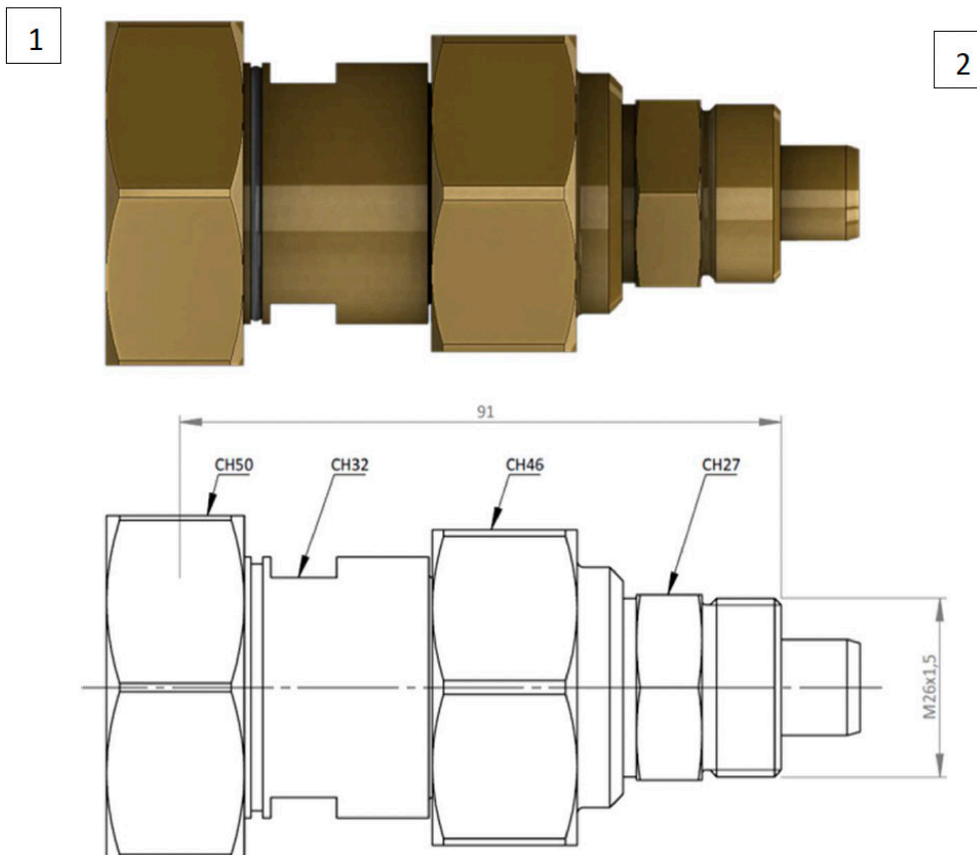
- ✔ Connection 1: DN20 male coupling valve
- ✔ Connection 2: DN20 male coupling valve
- ✔ Materials: Brass
- ✔ PN50



▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

COUPLING VALVE DN20/DN8

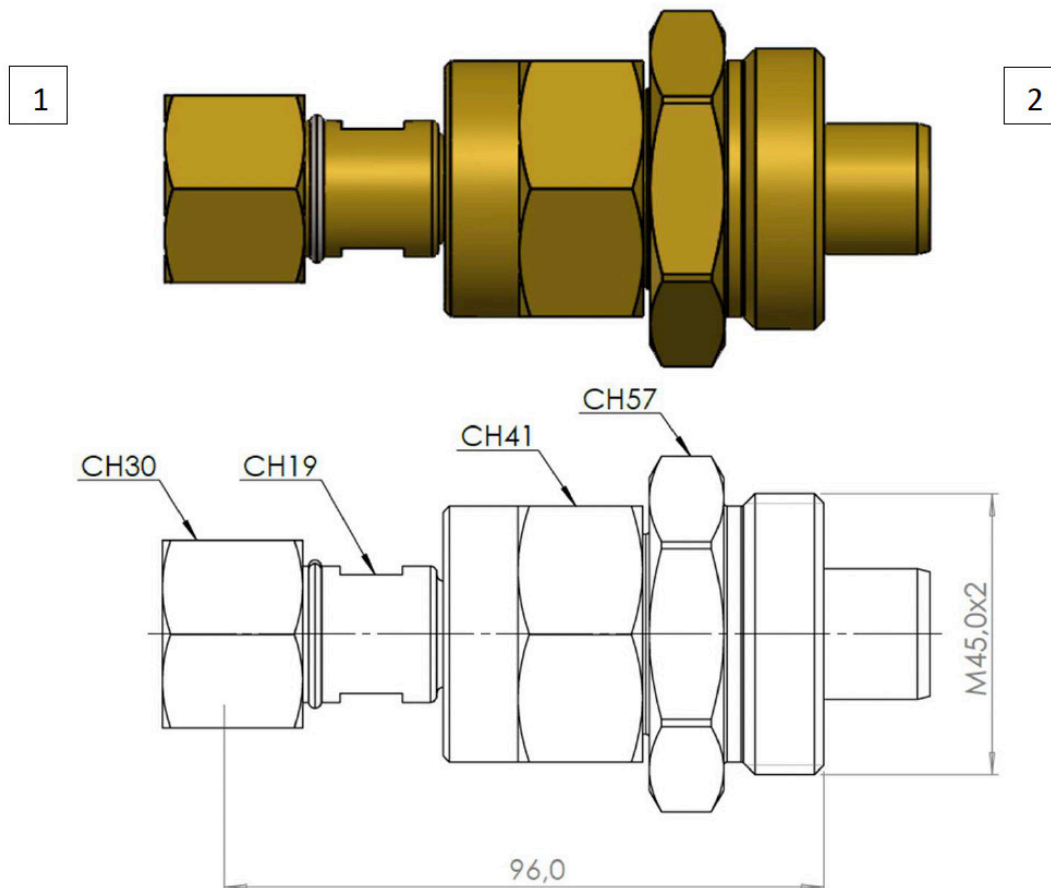
- ✔ Connection1: DN20 female coupling valve M36x2
- ✔ Connection 2: DN8 male coupling valve M26x1,5
- ✔ Materials: Brass
- ✔ Supplied with thread protection caps
- ✔ PN50



▶ **DN20 SF₆ ADAPTER KIT**
VAL103-01

COUPLING VALVE DN8/DN20

- ✔ Connection 1: DN8 female coupling valve M20x1,5
- ✔ Connection 2: DN20 male coupling valve M36x2
- ✔ Materials: Brass
- ✔ Supplied with thread protection caps
- ✔ PN50



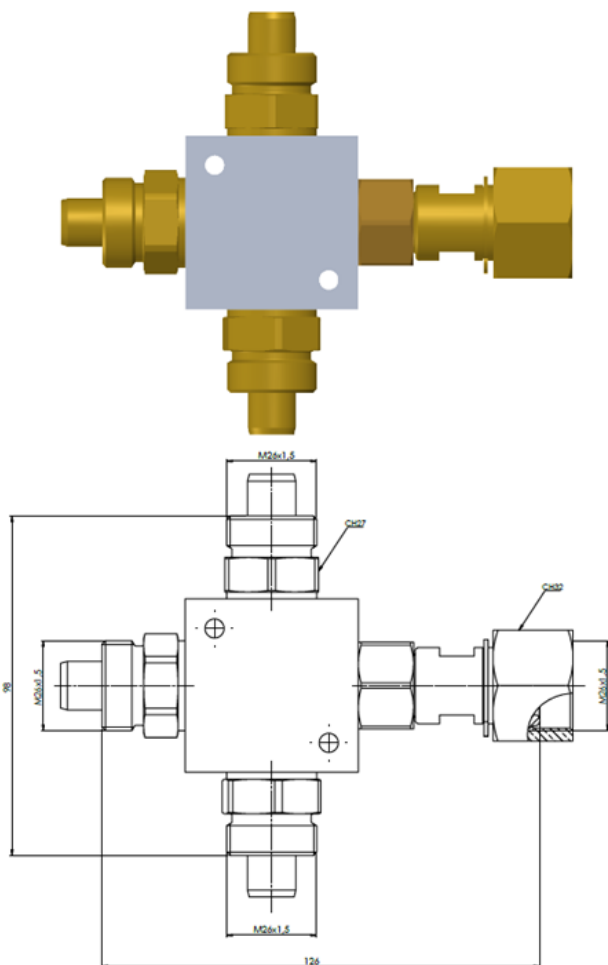
▶ 4-WAY DISTRIBUTOR

VAL102-19

DESCRIPTION

4-WAY DISTRIBUTOR WITH DN8 COUPLING VALVES

- ✔ Connection 1: DN8 male coupling valve M26x1,5
- ✔ Connection 2: DN8 male coupling valve M26x1,5
- ✔ Connection 3: DN8 male coupling valve M26x1,5
- ✔ Connection 4: DN8 female coupling valve M26x1,5
- ✔ PN64
- ✔ Materials: Body: aluminium - Valves: brass



CYLINDER COUPLING

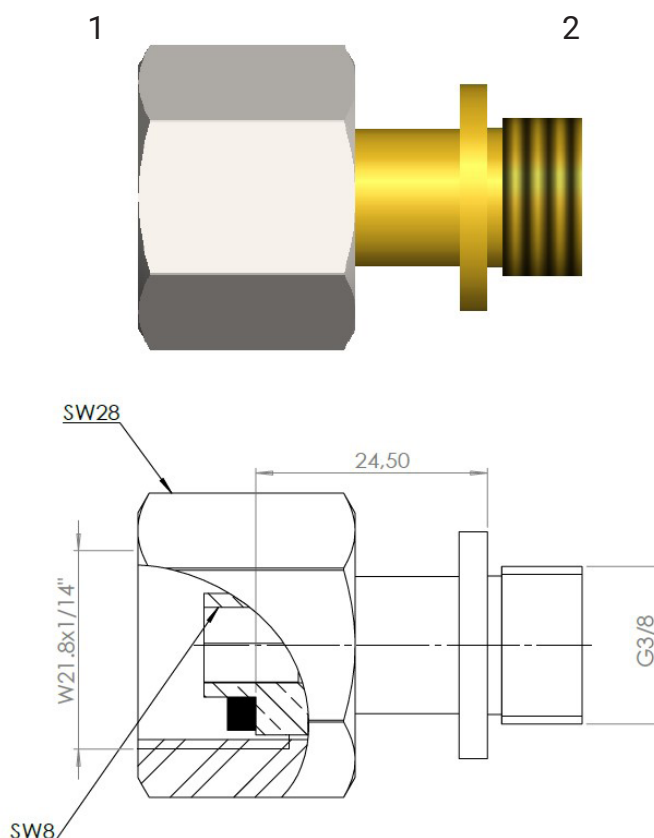
W21.8X1/14"

VAL101-01

DESCRIPTION

CYLINDER COUPLING W21.8X1/14"

- ✔ Connection 1: Cylinder connection W21.8 x 1/14"
- ✔ Connection 2: G 3/8"
- ✔ PN64
- ✔ Materials: Body: brass - Nut: AISI 304 - Gasket: PTFE



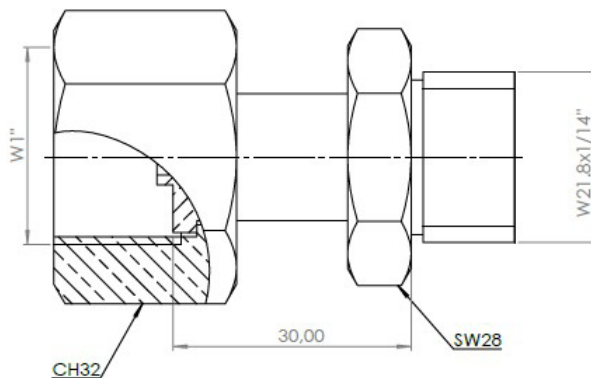
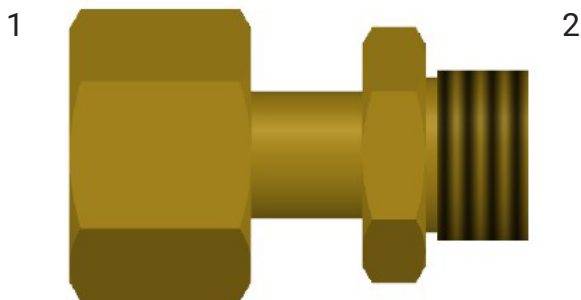
CYLINDER COUPLING ADAPTER W1" TO W21.8X1/14"

VAL101-02

DESCRIPTION

CYLINDER COUPLING ADAPTER

- ✔ Connection 1: Cylinder connection W1"
- ✔ Connection 2: W21.8 x 1/14"
- ✔ PN64
- ✔ Materials: Body: brass - Gasket: PTFE



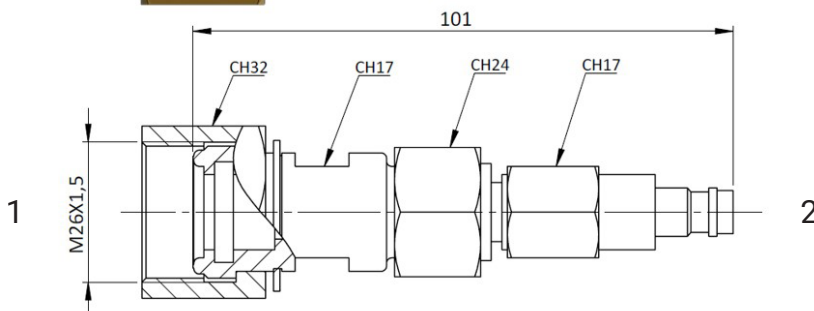
DN8 QUICK COUPLING ADAPTER

VAL102-50-V

DESCRIPTION

DN8 QUICK COUPLING ADAPTER

- ✓ Connection 1: M26x1,5
- ✓ Connection 2: quick coupling
- ✓ PN35
- ✓ Materials: Body: brass - Gasket: EPDM



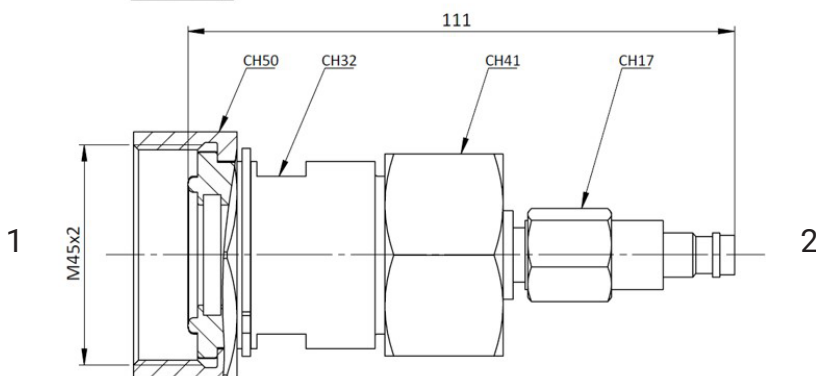
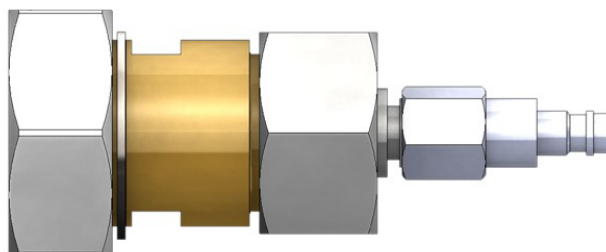
DN20 QUICK COUPLING ADAPTER

VAL103-50-V

DESCRIPTION

DN20 QUICK COUPLING ADAPTER

- ✔ Connection 1: M45x2
- ✔ Connection 2: quick coupling
- ✔ PN35
- ✔ Materials: Body: brass - Gasket: EPDM

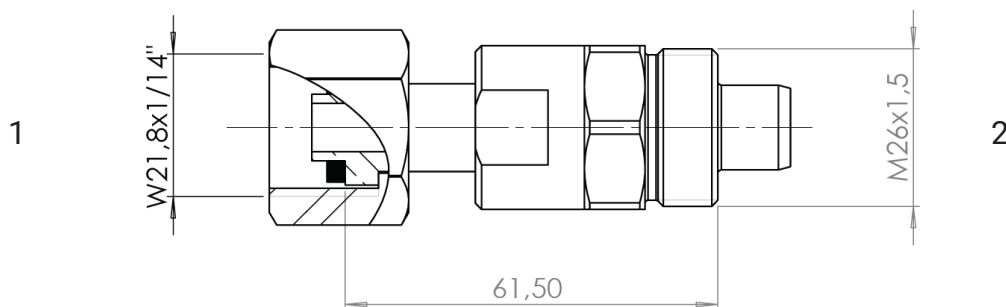
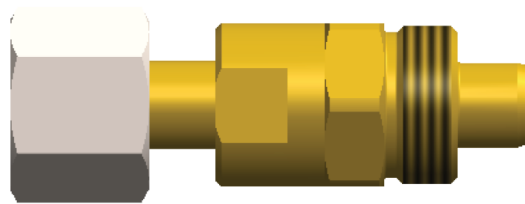


CYLINDER CONNECTION - DN8 MALE VALVE ADAPTOR

VAL101-03

DESCRIPTION

- ✔ Connection 1: W21.8x1/14"
- ✔ Connection 2: M26x1,5
- ✔ PN50
- ✔ Material: Body: brass

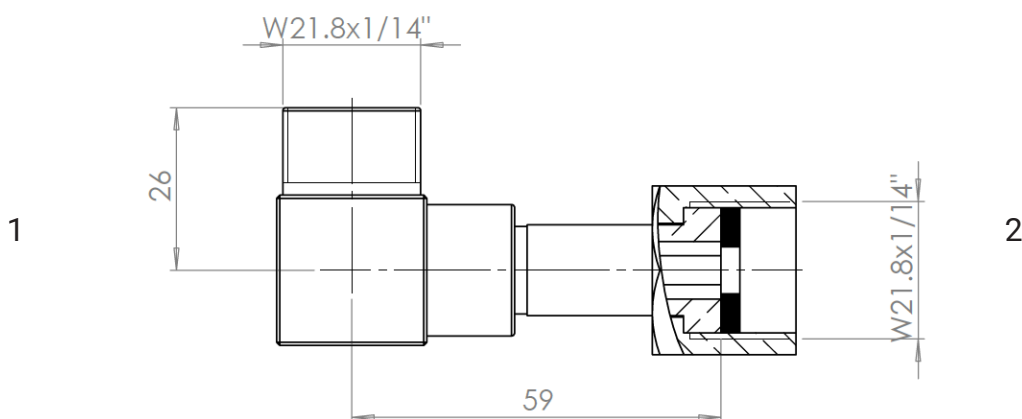
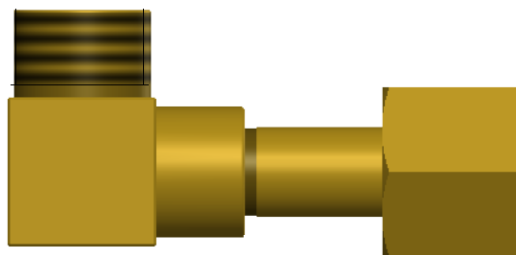


FEMALE CYLINDER CONNECTION - MALE CYLINDER CONNECTION 90° ADAPTOR

VAL101-05

DESCRIPTION

- ✔ Connection 1: W21.8x1/14" M
- ✔ Connection 2: W21.8x1/14" F
- ✔ PN50
- ✔ Material: Body: brass





HOSES

▶ DN8 AND DN20 RUBBER HOSES

TBS102-XX, TBS101-XX

DESCRIPTION

- Highly resistant synthetic rubber tube with **steel core**
- High:
 - flexibility**
 - weather conditions resistance**
 - fluid pressure resistance**
- Vacuum and pressure-tight
- **DN8/DN20 molecular sealed valves** at both ends



	TBS101-XX DN8	TBS102-XX DN20
Available lengths [mm]	5-10-20-others on request	5-10-20-others on request
Internal diameter ID [mm]	8	20
Operating temperature [°C]	-40 ÷ +100	-40 ÷ +100
Colours	Black with green or yellow band	Black with green or yellow band
Maximum pressure [bar]	64	64



▶ **DN8 AND DN20 RUBBER HOSES**
TBS102-XX, TBS101-XX

MATERIALS

- ⚙ INNER LAYER: highly resistant synthetic rubber
- ⚙ INTERMEDIATE LAYER: braided insertion in highly resistant steel wire
- ⚙ EXTERNAL LAYER: synthetic rubber with temperature and weather conditions high resistance

CERTIFICATES ISSUED

- 📄 Cumulative Leak Test Certificate for the lot
(performed by qualified technicians
UNI EN ISO 9712 - SNT TC1A)

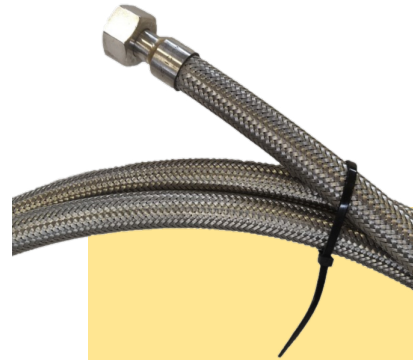


▶ DN8 AND DN20 STAINLESS STEEL PIPES

TBS108-XX, TBS109-XX

DESCRIPTION

- Stainless steel pipes
- High resistance to:
 - corrosion** due to acidic substances
 - weather condition**
 - fluid pressure**
- Vacuum and pressure-tight
- **DN8/DN20 molecular sealed valves** at both ends



MATERIALS

- ⚙ HOSE MATERIAL (INTERNAL): Stainless steel 1.440, AISI 316 L
- ⚙ BRADING (EXTERNAL): 1 steel stocking 1.4301, AISI 304

CERTIFICATES ISSUED

- 📄 Cumulative Leak Test Certificate for the lot
(performed by qualified technicians
UNI EN ISO 9712 - SNT TC1A)



► **DN8 AND DN20 STAINLESS STEEL PIPES**

TBS108-XX, TBS109-XX

TECHNICAL SPECIFICATIONS

	TBS108-XX DN8	TBS109-XX DN20
Operating temperature [°C]	-200 ÷ +550	-200 ÷ +550
Operating pressure 20°C [bar]	64	64
Internal diameter ID [mm]	8.2	20.2
External diameter ED [mm]	13.6	28.6
Dynamic bend radius [mm]	125	170
Static bend radius [mm]	32	70
Weight per m [kg]	0.208	0.504
Available lengths [mm]	5-10-20-others on request	5-10-20-others on request



▶ DN8 STORAGE HOSE CONNECTION

TBS106-01

DESCRIPTION

- Ideal for: SF₆ storage in cylinders
- Highly resistant synthetic rubber hose with **steel core**
- High:
 - flexibility**
 - weather conditions resistance**
 - fluid pressure resistance**
- Vacuum and pressure-tight



TECHNICAL SPECIFICATIONS

- ⚙️ DIMENSIONS: Length: 5 m
- ⚙️ DIAMETER: DN8
- ⚙️ MAX PRESSURE: 50 bar
- ⚙️ T MIN: -40°C
- ⚙️ T MAX: +100°C
- ⚙️ CONNECTION 1: Cylinder connection W21,7x1/14" with manual valve in AISI 316
- ⚙️ CONNECTION 2: DN8 Synecom female valve



▶ DN8 STORAGE HOSE CONNECTION

TBS106-01

STANDARD EQUIPMENT

5mt rubber hose DN8

DN8 female Synecom coupling valve

DN8 male - DN20 female adaptor

DN8 ball valve with oval hand wheel

Cylinder connection W21,7x1/14"

Cylinder connection W1"

MATERIALS

- ⚙ INNER LAYER: highly resistant synthetic rubber
- ⚙ INTERMEDIATE LAYER: braided insertion in highly resistant steel wire
- ⚙ EXTERNAL LAYER: synthetic rubber with temperature and weather conditions high resistance

CERTIFICATES ISSUED

- 📄 Cumulative Leak Test Certificate for the lot
(performed by qualified technicians
UNI EN ISO 9712 - SNT TC1A)





CYLINDERS

▶ CYLINDERS FOR NEW OR REGENERATED SF₆ GAS

ACC104-XX

ACC104-01 10l Cylinder for new or Regenerated SF₆ gas

ACC104-02 20l Cylinder for new or Regenerated SF₆ gas

ACC104-03 40l Cylinder for new or Regenerated SF₆ gas

DESCRIPTION



Synecom 10-20-40 litre SF₆ Cylinders suitable for containing new or Regenerated SF₆ in accordance with **IEC 60376**.
UN 1080 SULPHUR HEXAFLUORIDE

THE USE OF NEW GAS CYLINDERS (GREEN MARKED WITH GREEN LABEL) IS ADMISSIBLE FOR:

- New or Regenerated SF₆ gas in accordance with IEC 60376
- Used SF₆ with a SO₂ content of **≤ 499 ppmv**

ATTENTION:

If the gas quality cannot be defined or the gas contains decomposition products it is stipulated that reused cylinders (yellow marked with orange label) for transportation on roads in accordance with ADR (The European Agreement concerning the International Carriage of Dangerous Goods by Road).

REPEATED INSPECTION:

The user of the cylinders is responsible to carry out repeated inspections on pressure vessels for transportation of gases with the 2A classification code in accordance with ADR every 10 years. Please observe the local rules and regulations.

ADR REGULATIONS FOR THE TRANSPORTATION ON ROADS:

- Label for new or regenerated SF₆ gas: **UN1080**
- Label for used SF₆ with a SO₂ content of ≤499 ppmv: **UN3163**
- Classification code: 2A
- Hazard label: 2.2

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synecomsf6.com

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▶ **CYLINDERS FOR NEW
OR REGENERATED SF₆ GAS**
ACC104-XX

APPLICATION

- ☑ Cylinders suitable for containing new or Regenerated SF₆ gas in accordance with **IEC 60376**
- ☑ LABEL **UN 3163**
- ☑ LABEL **UN 1080**

TECHNICAL SPECIFICATIONS

- ⚙ MATERIAL: STEEL P355NL1
- ⚙ DIMENSION: External diameter 140/175/210 mm - Length: 950/980/1380 mm
- ⚙ CAPACITY: 10-20-40 litres
- ⚙ WEIGHT: ~10-20-40 kg
- ⚙ COLOUR: Green RAL 6018
- ⚙ STANDARD: EN 14208 - TPED 2010/35/EC
- ⚙ Tank recertification in accordance with ADR/RID 2017, 1.8.7.4.: every 10 years
- ⚙ CYLINDER THREAD: 25E
- ⚙ TEST PRESSURE: 200 - 300 bar
- ⚙ SF₆ GAS: UN 1080 SULPHUR HEXAFLUORIDE

VALVE FOR NEW OR REGENERATED SF₆ WITH A SO₂ CONTENT OF ≤ 499 PPMV IN ACCORDANCE WITH 477 NO. 6 W21.8 X 1/14"

- ⚙ MATERIAL: BRASS

PROVIDED DOCUMENTS

📄 Certificate of conformity

📄 Test certificate



▶ 600 LITRE TANK FOR NEW OR REGENERATED SF₆ GAS

ACC104-04

DESCRIPTION



Synecom 600 litre SF₆ tank suitable for containing new or Regenerated SF₆ in accordance with **IEC 60376**.
UN 1080 SULPHUR HEXAFLUORIDE

THE USE OF NEW GAS CYLINDERS (GREEN MARKED WITH GREEN LABEL) IS ADMISSIBLE FOR:

- New or Regenerated SF₆ gas in accordance with IEC 60376
- Used SF₆ with a SO₂ content of **≤ 499 ppmv**

ATTENTION:

If the gas quality cannot be defined or the gas contains decomposition products it is stipulated that reused cylinders (yellow marked with orange label) for transportation on roads in accordance with ADR (The European Agreement concerning the International Carriage of Dangerous Goods by Road).

REPEATED INSPECTION:

The user of the cylinders is responsible to carry out the repeated inspections on pressure vessels for transportation of gases with the 2A classification code in accordance with ADR every 10 years. Please observe the local rules and regulations.

ADR REGULATIONS FOR THE TRANSPORTATION ON ROADS:

- Label for new or regenerated SF₆ gas: **UN1080**
- Label for used SF₆ with a SO₂ content of **≤499 ppmv: UN3163**
- Classification code: 2A
- Hazard label: 2.2

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▶ **600 LITRE TANK FOR NEW OR REGENERATED SF₆ GAS**
ACC104-04

APPLICATION

- ☑ Tank suitable for containing new or regenerated SF₆ gas in accordance with IEC 60376
- ☑ LABEL UN 3163

TECHNICAL SPECIFICATIONS

- ⚙ MATERIAL: STEEL P355NL1
- ⚙ DIMENSION: External diameter: 700 mm - Length: 2160 mm
- ⚙ CAPACITY: 600 litres
- ⚙ WEIGHT: ~ 500 kg
- ⚙ COLOUR: Green RAL 6018
- ⚙ STANDARD: EN 14208 - TPED 2010/35/EC
- ⚙ Tank recertification in accordance with ADR/RID 2017, 1.8.7.4.: every 10 years
- ⚙ CYLINDER THREAD: 25E
- ⚙ TEST PRESSURE: 70 bar
- ⚙ SF₆ GAS: UN 1080 SULPHUR HEXAFLUORIDE

VALVE FOR NEW OR REGENERATED SF₆ WITH A SO₂ CONTENT OF ≤ 499 PPMV IN ACCORDANCE WITH 477 NO. 6 W21.8 X 1/14"

- ⚙ MATERIAL: BRASS

PROVIDED DOCUMENTS

📄 Certificate of conformity

📄 Test certificate



▶ CYLINDERS FOR USED SF₆ GAS

ACC105-XX

ACC105-01	10l Cylinder for used SF ₆ gas
ACC105-02	20l Cylinder for used SF ₆ gas
ACC105-03	40l Cylinder for used SF ₆ gas

DESCRIPTION



Synecom 10-20-40l Cylinders are design to contain used gas in accordance with **IEC 60480**.
SULPHUR HEXAFLUORIDE + DECOMPOSITION PRODUCT + AIR

THE SF₆ GAS MUST BE STORED IN REUSED CYLINDERS (YELLOW MARKED WITH ORANGE LABEL) WHEN:

- SO₂ content ≥ 500 ppmv
- The SF₆ gas quality is undefined

REPEATED INSPECTION

The user of the Cylinders is responsible to carry out the repeated inspections on pressure vessels for transportation of gases with the 2T and 2TC classification code in accordance with ADR every 5 years. Please observe the local rules and regulations.

ADR REGULATIONS FOR THE TRANSPORTATION ON ROADS:

Label for used SF₆ with a SO₂ content of ≥ 500 ppmv:

- Toxic and non-corrosive: **UN3162**
- Toxic and corrosive: **UN3308**

If the gas quality is undefined we recommend using the UN 3308 label

Classification code: 2T / 2TC Hazard label: 2.3 / 2.3 + 8



► **CYLINDERS FOR USED SF₆ GAS**
ACC105-XX

APPLICATION

- ✓ Cylinders suitable for containing used SF₆ gas in accordance with **IEC 60480**
- ✓ LABEL **UN 3162**
- ✓ LABEL **UN 3308**

TECHNICAL SPECIFICATIONS

- ⚙ MATERIAL: STEEL P355NL1
- ⚙ DIMENSION: External diameter 140/175/210 mm - Length: 950/980/1380 mm
- ⚙ CAPACITY: 10-20-40 litres
- ⚙ WEIGHT: ~10-20-40 kg
- ⚙ COLOUR: Yellow RAL 1018
- ⚙ STANDARD: EN 14208 - TPED 2010/35/EC
- ⚙ Tank recertification in accordance with ADR/RID 2017, 1.8.7.4.: every 5 years
- ⚙ CYLINDER THREAD: 25E
- ⚙ TEST PRESSURE: 100 BAR
- ⚙ MIXTURE: SULPHUR HEXAFLUORIDE + SF₆ DECOMPOSITION PRODUCTS + AIR

VALVE FOR USED SF₆ WITH A SO₂ CONTENT OF ≥ 500 PPMV IN ACCORDANCE WITH 477 NO. 8 - 1"

- ⚙ MATERIAL: STAINLESS STEEL

PROVIDED DOCUMENTS

- 📄 Certificate of conformity
- 📄 Test certificate



▶ 600 LITRE TANK FOR USED SF₆ GAS

ACC105-04

DESCRIPTION



Synecom 600 litre SF₆ tank suitable for containing used gas in accordance with **IEC 60480**.
SULPHUR HEXAFLUORIDE + DECOMPOSITION PRODUCT + AIR

THE SF₆ GAS MUST BE STORED IN REUSED CYLINDERS (YELLOW MARKED WITH ORANGE LABEL) WHEN:

- SO₂ content ≥ 500 ppmv
- The SF₆ gas quality is undefined

REPEATED INSPECTION

The user of the cylinders is responsible to carry out the repeated inspections on pressure vessels for transportation of gases with the 2T and 2TC classification code in accordance with ADR every 5 years. Please observe the local rules and regulations.

ADR REGULATIONS FOR THE TRANSPORTATION ON ROADS:

Label for used SF₆ with a SO₂ content of ≥ 500 ppmv:

- Toxic and non-corrosive: **UN3162**
- Toxic and corrosive: **UN3308**

If the gas quality is undefined we recommend using the UN 3308 label
Classification code: 2T / 2TC Hazard label: 2.3 / 2.3 + 8



▶ **600 LITRE TANK FOR USED SF₆ GAS**
ACC105-04

APPLICATION

- ☑ tank suitable for containing used SF₆ gas in accordance with IEC 60480
- ☑ LABEL UN 3162

TECHNICAL SPECIFICATIONS

- ⚙ MATERIAL: STEEL P355NL1
- ⚙ DIMENSION: External diameter: 700 mm - Length: 2160 mm
- ⚙ CAPACITY: 600 litres
- ⚙ WEIGHT: ~ 550 kg
- ⚙ COLOUR: Yellow RAL 1018
- ⚙ STANDARD: EN 14208 - TPED 2010/35/EC
- ⚙ Tank recertification in accordance with ADR/RID 2017, 1.8.7.4.: every 5 years
- ⚙ CYLINDER THREAD: 25E
- ⚙ TEST PRESSURE: 100 BAR
- ⚙ MIXTURE: SULPHUR HEXAFLUORIDE + SF₆ DECOMPOSITION PRODUCTS + AIR

VALVE FOR USED SF₆ WITH A SO₂ CONTENT OF ≥ 500 PPMV IN ACCORDANCE WITH 477 NO. 8 - 1"

- ⚙ MATERIAL: STAINLESS STEEL

PROVIDED DOCUMENTS

📄 Certificate of conformity

📄 Test certificate



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