

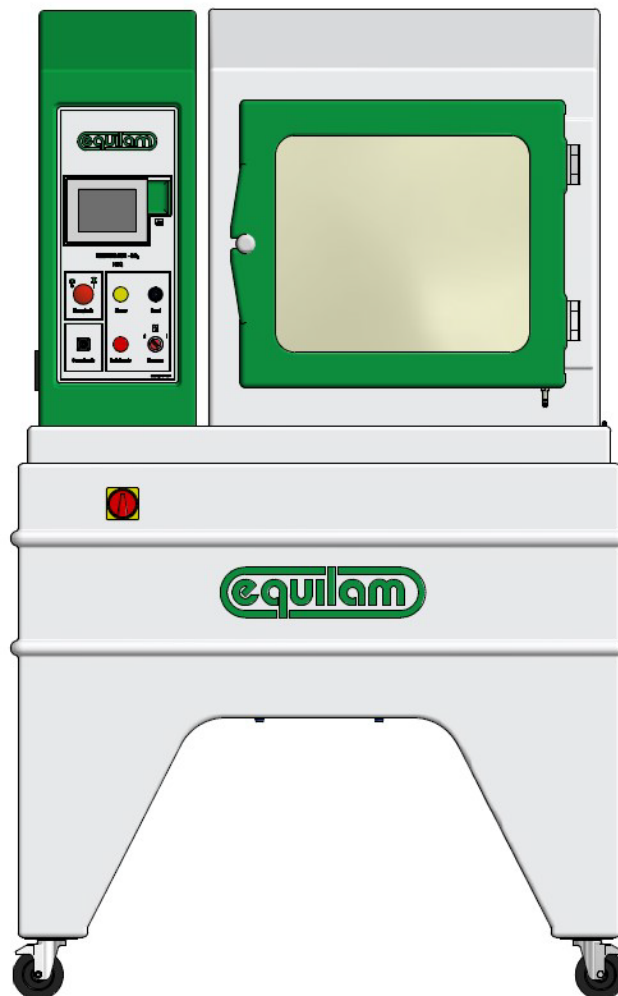
kesternich – SO₂ - *Model KEQ 300*

The chambers of this series create a totally controlled acid humid environment. The samples are exposed to acid and saturated simulating the real conditions as the gases emitted by engines, heating system, industrial environment, acid rain among others.

EQUIPMENT SUMMARY

Built in fiberglass with special resin of high chemical and temperature resistance (Inert Material – DIN 50018 / ASTM G87/ ISO 6988-2 / ISO 3231), externally and internally.

US PATENT # 10371623



Illustrative Figure KEQ 300

CONSTRUCTION DETAILS

- ✓ Control Panel: PLC (Programable Logical Controller) with colored touch screen of 5.7";



- ✓ DEI water tray built with inert material (nonmetallic), volume: 0.52 gal (2 L), included security system to lack of water on the tray and overheating. Cooling by air circulation.

- ✓ Frontal door in accordance to technical such as tempered glass standards.



- ✓ 8 round bars specimens support of 12 mm of material nonmetallic.



- ✓ Electronic SO₂ dosing device with high precision;

- ✓ Supervisory Software – for data acquisition, 2 types (options):
 - Via RS 232, 485, USB, Ethernet needs a PC connected full time.



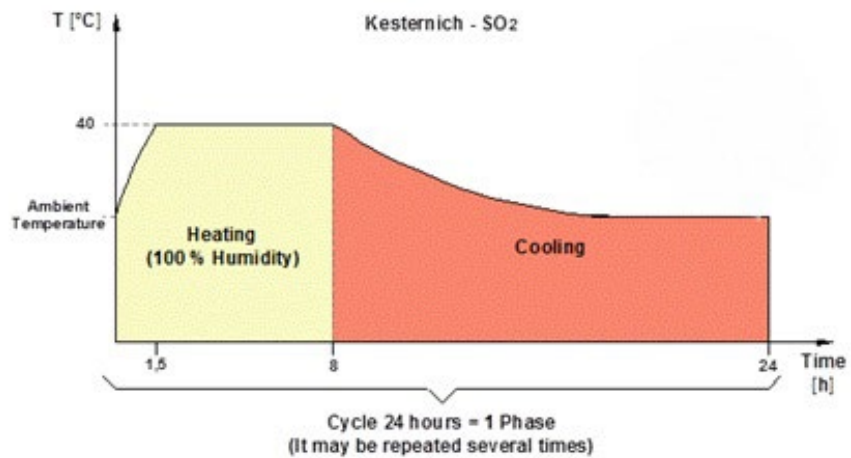
✓ Automatic cycle in accordance to the below standards:

DIN 50018

ISO 6988-2

ASTM G 87

ISO 3231



- ✓ Internal cabinet in fiberglass without metallic parts, ensuring test performance
- ✓ Allows visualization of programmed mode and the performed modes, records and shows date and hour of executed alarms
- ✓ Loops Program: 20 modes, with repetitions of 100 times for each program
- ✓ Events: outputs ON/OFF – 220 Volts – 5 Amp – (to perform dynamic tests – optional)
- ✓ Resolution: 0,1°C
- ✓ Scan tax: 30 milliseconds maximum
- ✓ Auto Tuning independent for each mode
- ✓ Control System of temperature and relative humidity P.I.D (Proportional Integrative Derivative) independent for each mode and mode ramp to attend the standard
- ✓ Function preventive maintenance, to avoid not programmed stops
- ✓ Function scheduling with date and hour to start the test
- ✓ Function Graphic with a single touch on the panel allows the operator to visualize graphically the parameters of test on line on the touch screen
- ✓ Timer with indication of time of test and time of interruption
- ✓ Selection on display of unit of temperature °C or °F;

TECHNICAL INFORMATION

- ✓ Cabinet internal temperature Range: Amb. + 9°F(+5°C) - +140°F(+60°C)
- ✓ Ambient temperature for chamber's installation: +62°F(+17°C) - +82°F (+28°C) - Max. 85% R.H (without condensation)
- ✓ Homogeneity of the internal cabinet temperature: ±1.8°F (±1°C)
- ✓ Relative humidity of the internal cabinet: 97% - 100%
- ✓ SO₂ dosing: 0.006604 gal to 1.585 gal (25 ml to 6.000 ml)
- ✓ DI water tray volume: 0.52 gal (2 L)
- ✓ Electrical Supply: 208 to 220 Vac Ø1 60 Hz – 10 FLA (other consult factory)
- ✓ Volume of internal test cabinet: 79.3 gal (300 L)
- ✓ Approx. net weight: 143 lbs. (65 kg)
- ✓ Approximate Shipping Weight (Crated): 309 lbs. (140 kg)
- ✓ Internal dimensions L x W x H: 28" x 20" x 35.3" – 29.9" (720mm x 510mm x 890 – 760mm)
- ✓ External dimensions L x W x H: 43.3" x 36.2" x 77.9" (1100mm x 920mm x 1980mm)

OPTIONAL ACCESSORIES

CODE: EQOP.0006 • (1) Sample rack with 15° inclination – 79.5-gal (300L) chamber



CODE: EQOP. 0150 • Safety system for detection of SO₂ leakage, with PLC interface.

- Special rack for customer supplied test sample

CODE: EQOP.0113 (For 2 Chambers) • Safety cabinet for Kessenich – SO₂ Composed of doors, wall in fiber glass, fan 130.66 CFM in fiber glass and fume hood in fiber glass smooth of two sides.

W x D x H: 99.6" x 74.9" x 114.2"

(2,530 x 1,900 x 2,900 mm).

Door: two-way door

(2) 27.6" x 74.9" ((2)700 x 1,900 mm)



CODE: EQOP.0113
(For 1 chamber)

- Safety cabinet for Kessenich – SO₂
Composed of doors, wall in fiber glass, fan 130.66 CFM in fiber glass and fume hood in fiber glass smooth of two sides.

W x D x H: 63.0" x 49.2" x 114.2"

(1,600 x 1,250 x 2,900 mm).

Door: two-way door

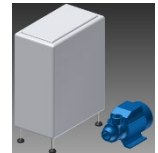
(2) 27.6"x 74.9" ((2)700 x 1,900 mm)

Part List item 3.1



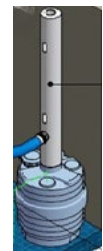
CODE: EQOP.0112

- Drain compartment for condensate, with pump, to drain of solution.
Part List Item 6.



CODE: EQOP.0152

- Gas Scrubber for Kesternich
Part list item 8.



CODE: EQOP. 0037

- Supervisory Software – for data Acquisition.



CODE: EQOP.0076

- Test Panels – 2" x 4" (50mm x 100 mm). In accordance with DIN 50018 / ISO 6988-2. (100 Pieces).



CODE: EQOP.0077

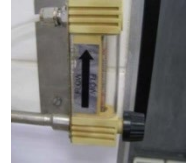
- Test Panels – 10" x 15" (250mm x 400 mm). In accordance with DIN 50018 / ISO 6988-2 (25 pieces).



CODE: EQOP. 0047 • Digital Indicator of Relative Humidity



CODE: EQOP.0054 • 316 stainless Steel Flow meter for SO₂ dosing with adjust valve.



CODE: EQOP.0055 • SO₂ cylinder – 3.0 – 99,9% - 247,2 ft³ (7 m³) volume + pressure regulating valve with O₂ pressure gauge in 316 stainless steel.



RECOMMENDATED LABORATORY FACILITIES

DI water: 0.52 gal (2 L) per 24 hours cycle

Electrical Supply: 208 to 220 Vac Ø1 60 Hz – 10 FLA (others consult factory)

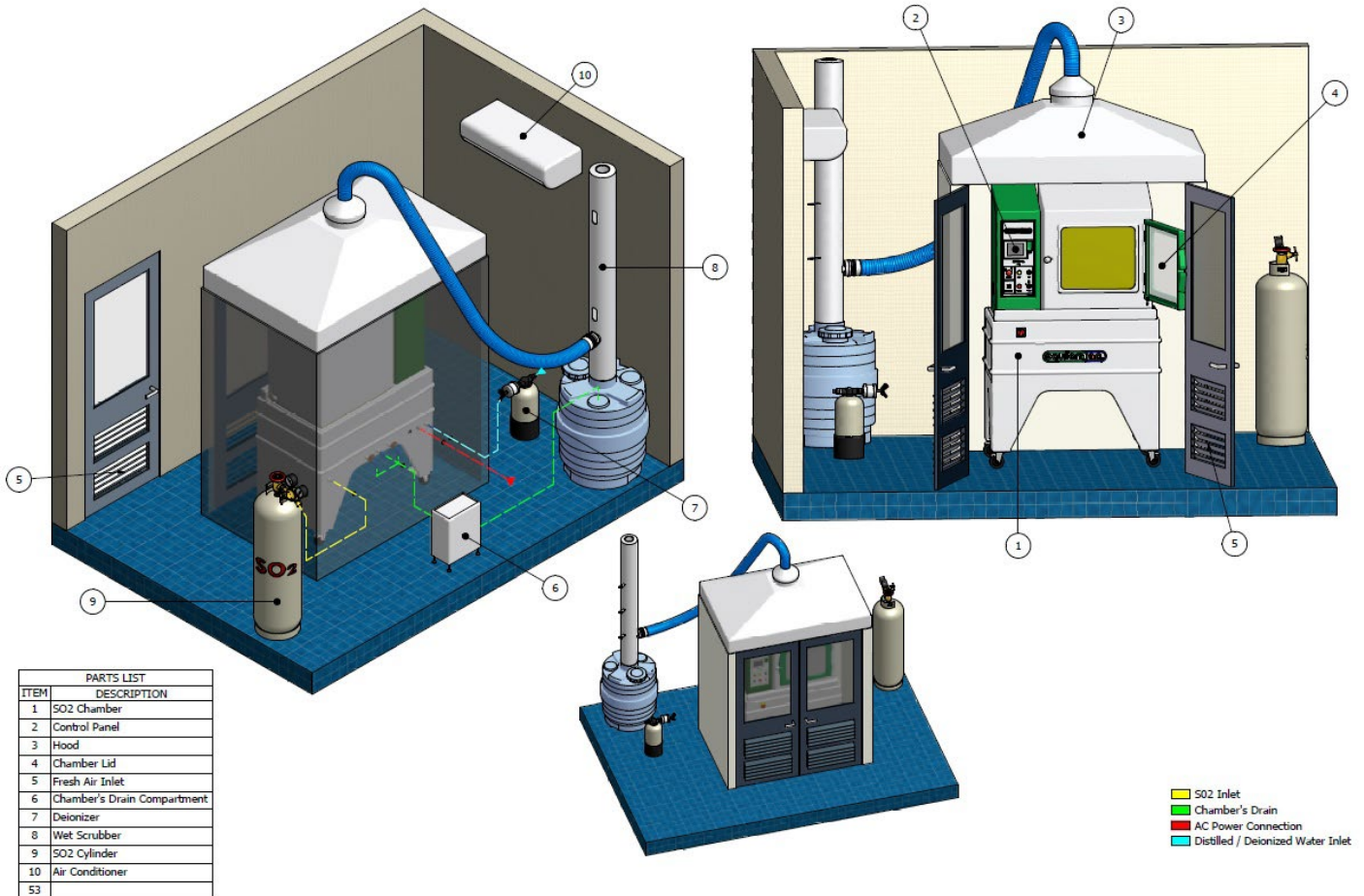
Water Supply: Chamber cleaning

Water to be per ASTM D 1193 Type IV standard

Exhaust: Air room from where equipment will be installed

Drain: 4" tubing (must be drained to sewage treatment)

Recommendation of the corrosion laboratory - SO₂ - Kesternich Test Chamber



(One) Year Parts Warranty against manufacturing defects from date of delivery at customer's site. This assumes equipment is used under normal operating conditions in accordance to the instruction manual. This warranty does not apply to glassware (lamps). In case of non-warranty issues during warranty period, actual expenses shall apply.

Note 1: All our equipment is delivered with Installation, Maintenance and User Manuals. We believe this material is enough for the correct use of the equipment. We are available for further questions and clarifications. If necessary, we provide the service of assembling and staff training at client's site (Cost for this service available upon request).

Note 2: Appearance and specifications of equipment are subject to change without prior notice