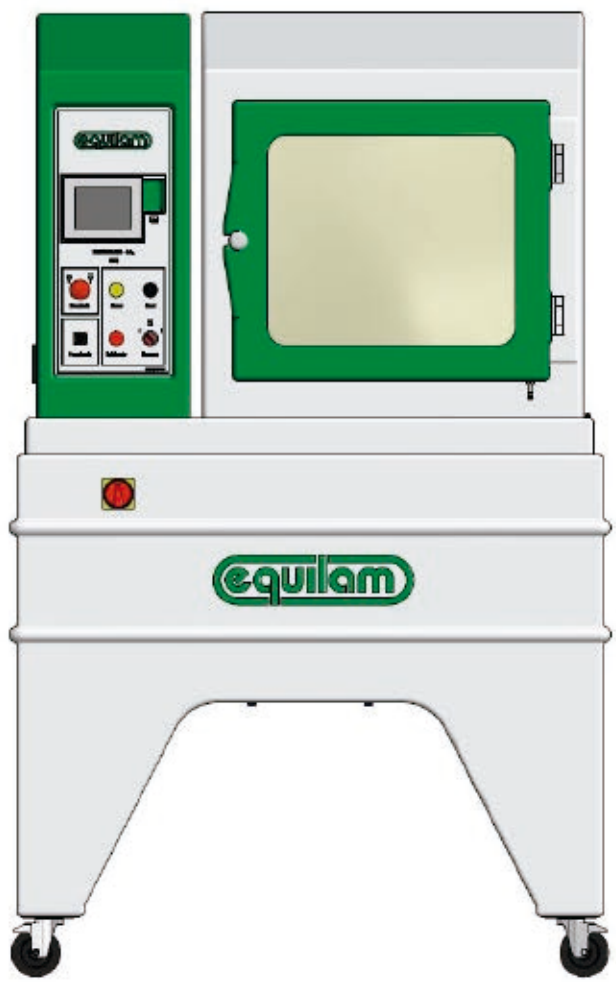
Kesternich - *Series KEQ*

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.



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 SO_2 dosing device with high precision;

✓ Supervisory Software – for data acquisition, 2 types (options):

- Via RS 232 or USB, needs a PC connected full time.
- Via SD Card, all acquisition will be on SD card of touch screen.

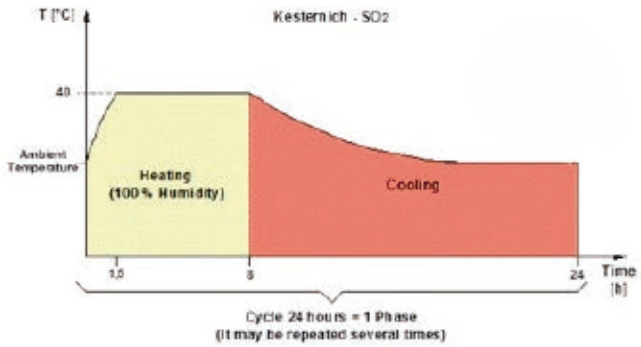
✓ Automatic cycle in accordance to the below standards:

DIN 50018

DIN EN 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: 0,1ºC

✓ 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

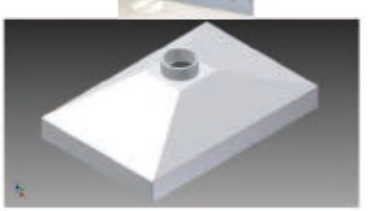
✓ Timer with indication of time of test and time of interruption

✓ 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%
- ✓ SO_2 dosing: 0.005 gal to 1.585 gal (20 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 Pricing	
EQOP. 0005	Special rack for customer supplied test sample
EQOP. 0006	(1) rack - 15° or 20° inclination – Chamber of 300 liters
EQOP. 0011	Fiberglass Fume Hood with smooth finishing internally and externally for an easier cleaning
EQOP. 0012	Fiberglass axial fan assembly, capacity: 1940 cfm. Net weight: 88 lbs. (40 kg).
EQOP. 0013	DI Water assembly includes: activated carbon water filter, DI column, LED water quality indicator



EQOP. 0014 Spare DI water column

EQOP. 0015 Spare activated carbon water filter.

EQOP. 0025 Wood crate

EQOP.0035 Cable port Ø = 2"

EQOP. 0039 Start-up/Commissioning

EQOP. 0047 Digital indicator of Relative Humidity

EQOP. 0053 Certificate: Temperature of chamber – volume of SO2

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

EQOP.0055 SO2 cylinder – 3.0 – 99,9% - 247,2 ft³ (7 m3) volume + pressure regulating valve with 02 manometers in 316 stainless steel

EQOP. 0076 Test Panels – 2" x 4" (50mm x 100mm) in accordance with DIN 50018 / DIN EN ISO 6988-2
100 Pieces

EQOP. 0077 Test Panels – 10" x 15" (250mm x 400mm) in accordance with DIN 50018 / DIN EN ISO 6988-2. 100 Pieces.

EQOP. 0152 Gas Scrubber for Kesternich

EQOP. 0112 Drain compartment for condensate with pump to draining of solution.

EQOP. 0113 Safety cabinet composed of door and all sides in polycarbonate, air inlets, fan 130.66 CFM, fume hood in fiber glass

EQOP. 0114 Motor with capacity of 60m³/minute for the gas scrubber system

EQOP. 0150 Security system for detection of leaking of sulphur dioxide (SO_2)'s

Note: This option only can be purchased with the option EQOP. 00113

Further options shall be considered upon request

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)

CUSTOMER REFERENCE LIST

AUTO INDUSTRY	WHITE LINE	PAINT ELECTROPLATING	UNIVERSITIES RESEARCH CENTERS	METALLURGY
Fiat	Multibras	Anjo Química	ALAC	Alleward
Ford	Bosch	Akzo Nobel	CTA S.J. Campos	Castrol
General Motors	BSH Continental	Basf - Glasurit	Falcão Bauer	Cebrace
Honda	Electrolux	Chemetall	FEI	Continental Teves
Iveco Fiat	GE - OSI	Dorken	IPEN – SP	COSIPA
Marcopolo	Whirlpool	Killing	IPT - SP	CSN
Mercedes Benz		Magni América	ITAL	Keko
Peugeot Citroen		Metalcoating	PUC - Labelo	Metagal
Renault		Niquelação Brasil	SENAI	Petrobras
Scania		PPG	Erichsen- França	Sachs
Volkswagen		Zincagem Martins	Erichsen- Italia	Shell
Volvo		Sherwin Williams		Siemens
Toyota				Tramontina
Honda Thailand				Tenneco
				Tower

INTERNATIONAL TEST STANDARDS

SALT SPRAY	CASS	Kesternich	C.C.T	Corrodkote	ACCT	HUMIDITY
			ASTM G 85 *	ASTM B 380	ASTM G 85	
ASTM B 117	ASTM B 368	ASTM G 87	PV 1210 – VW *	DIN 50958	GMW 14872	ASTM D 1735
ISO 9227	ISO 9227 CASS	DIN 50018	GM 9540 P *		FORD CETP:00. 00-L-467	ASTM D 2247
JIS Z 2371			SAE 1563		SAE J 2334	DIN 50017
BSI 7479			CCT 1 – HONDA – NISSAN		VOLVO STD 423,0014	DIN EN ISO6270-2
ANFOR A05 101			CCT 4 – HONDA-NISSAN		VOLVO STD 1027, 14	
			CCT – HONDA			
			VDA 621-15 *			
Note "*": Dependent upon ambient laboratory conditions.						
Note: Each of equipment was carefully designed to meet a specific standard. We highly recommend that you don't use the same chamber for different solutions, e.g. don't use a Salt Spray chamber for CASS; Kesternich (SO_2) test or CASS chamber for humidity test due the chemical contamination that may distort the results						

(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.

Recommendation of the corrosion laboratory SO_2 - Kesternich