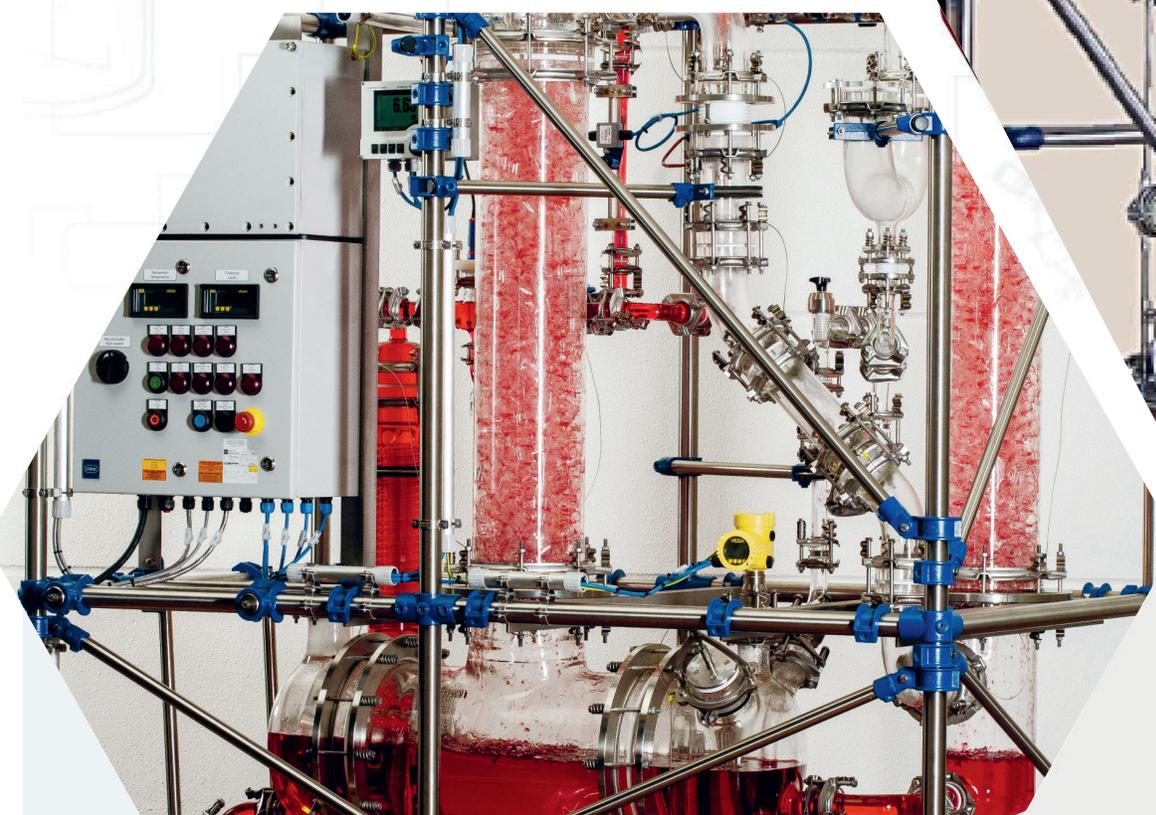


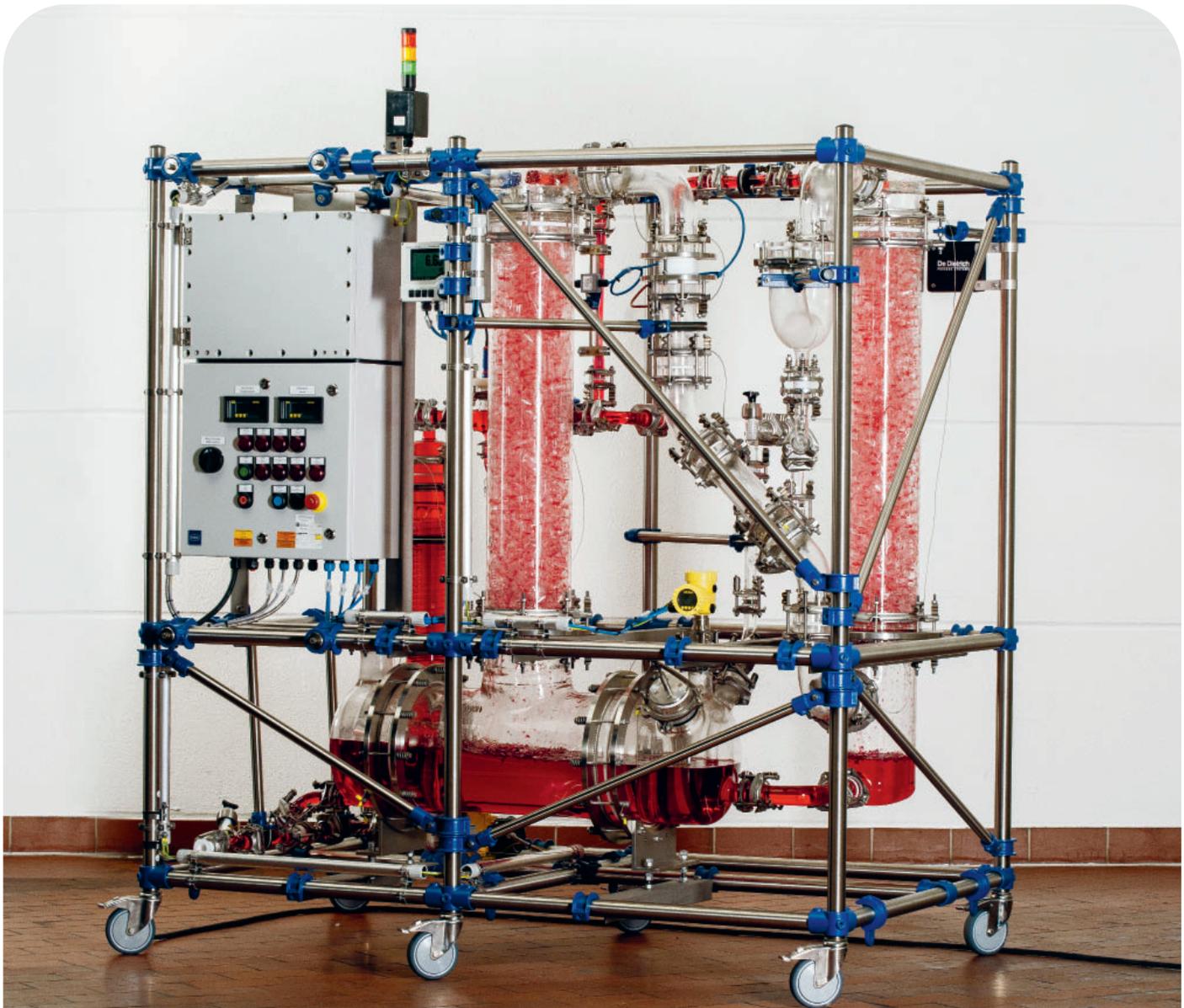
De Dietrich
PROCESS SYSTEMS



COMPACT GLASS SCRUBBER

vent gas solution for your
production units





Compact Gas Scrubber

CONCEPT

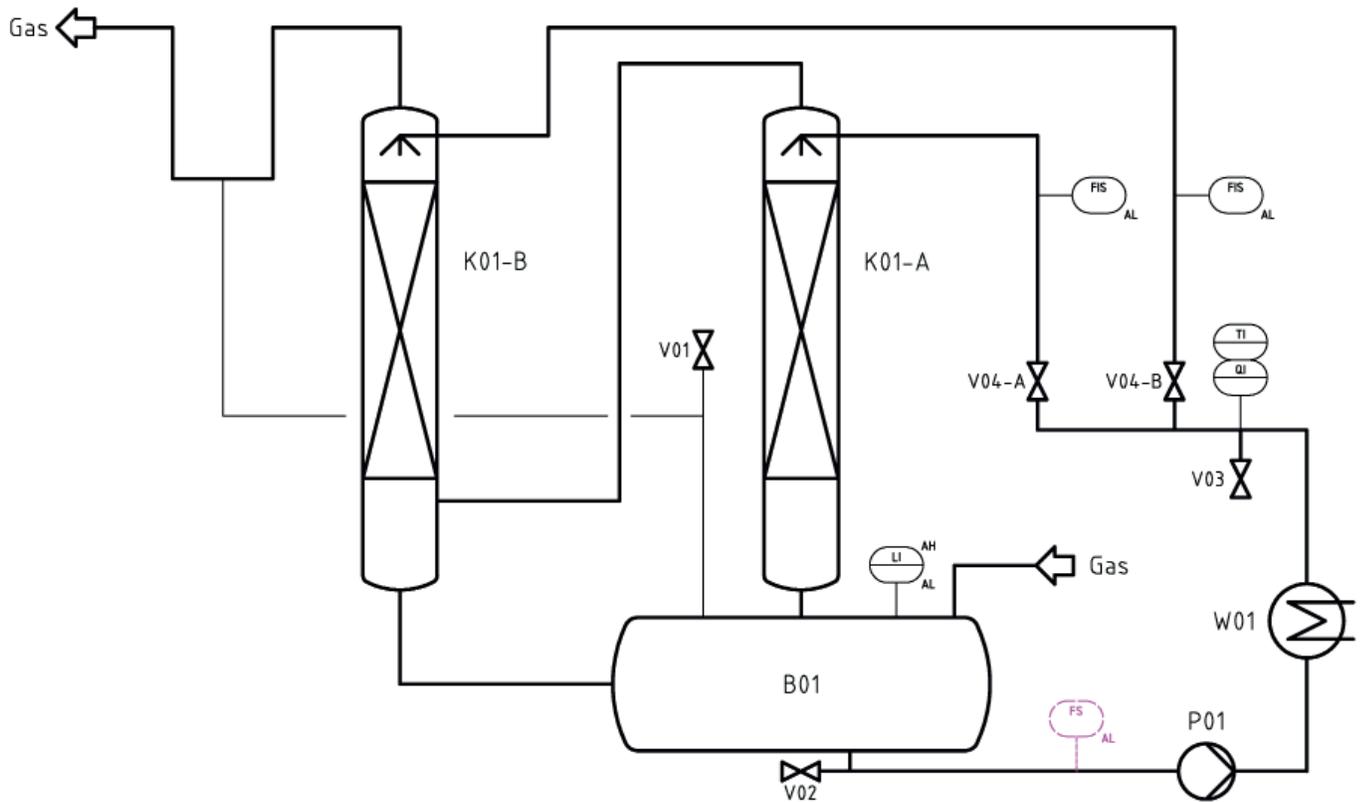
The highly corrosion resistant compact gas scrubber is especially advantageous for batch wise operated production plants with waste gas streams up to $200\text{Nm}^3/\text{h}$ (127 acfm) at atmospheric pressure.

Filled with an appropriate absorption liquid it is suitable for processing gas streams containing acidic, caustic, or organic loads. The absorption heat is removed via a heat exchanger. With the corrosion resistance of QVF Supra Borosilicate glass, the unit maximizes application usage.

The column of the gas scrubber with an effective height of 2m is split into 2 sections so that the overall height of the complete scrubber module is also only 2m (6'-8"), and width of 1m (3'-4"). The mobile unit therefore clears most industrial doors for transfer within your facility. DDPS also offers a smaller single column mobile scrubber with a smaller footprint.

It must only be connected to the electrical power and cooling water supplies.

The turn-key unit includes a control panel for operation in Class 1 Division 2, Group D area. The basic controls allow automated single charge scrubbing fluid/ batch mode operation, with pH displayed and alarms for shutdown conditions. The controls and automation can be upgraded to Ethernet IP communication, automated purge/ refill, additional process condition monitoring, and Class 1 Division 1.



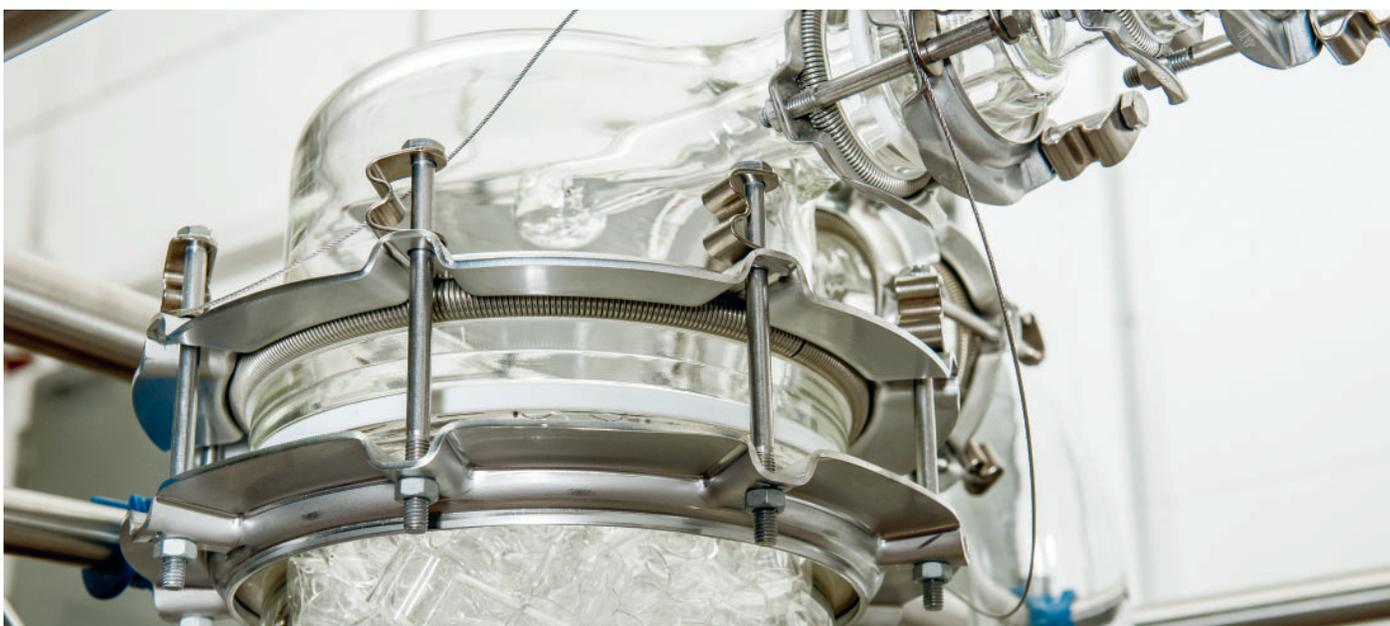
Flow Chart of the Compact Gas Scrubber

FUNCTION

The scrubbing/ absorption liquid is selected according to the components to be removed from the waste gas stream. It is manually charged to the Level Tank (B01). The efficiency of the caustic or acid absorption liquid can be monitored by sampling and lab analysis, or by pH, or optional conductivity probe(s) in the recirculation line.

The waste gas enters the scrubber system through a nozzle in the scrubbing fluid's 80L level tank. The vapor feed to the first column (K01-A) which is also mounted to the level tank (B01). The vapors leaving the top of the first column are routed via piping to the base of the 2nd column (K01-B). The exhaust from the 2nd column is connected to the customer exhaust.

Both columns are packed with glass Raschig ring, and a single pump (P01) circulates the scrubbing fluid to the distributors on the top of each column section. Flow rates to each column can be adjusted manually. The liquid level to and flow from the pump are protected by switches. The circulated fluid also flows through a heat exchanger to remove any heat of reaction/ neutralization.



Top Image: Split columns K01-A and K01-B linked with a vapor pipe. Bottom Image: Inlet of absorption liquid at top of each column section

TECHNICAL DESCRIPTION

All scrubber package-units essentially consists of a column, a receiver/level tank, a coil type heat exchanger, interconnecting glass piping, PTFE gaskets, PTFE bellows, Stainless Steel flanges & bolting, and a PVDF centrifugal pump. Standard packages are available for column diameters from DN100 (4") to DN300 (12"). All glass is from QVF Supra borosilicate glass product line, designed per the EU's pressure equipment directive.

The columns include sprinkler-style distributors and glass Raschig ring packing. The compact dual column scrubber provides a combined packed height of 2m (6.5') and the mobile single column scrubber is available with 1m (3.3') as standard, but as stated prior, custom designs are available.

The module's structure is stainless steel tubing/ piping with epoxy coated threadless piping fittings. Caster bases with two (2) locking.

Standard controls are push button stop/start with monitoring/display of pH & fluid temperature, alarms for liquid levels (high/low), pump flow, and e-stop for the compact dual column unit. The mobile single column base design is only visual gauges for temperature and pressure. Several options and upgrades are listed below. All systems are provided with manuals for operation and maintenance.

Note, dimensions will vary with selected options and custom configurations are available.

TECHNICAL DATA

	Model Style:	Compact Dual Column				Mobile Single Column	
	Size:	100	150	200	300	100	150
Gas Flow	Normal m ³ /h	10	30	70	230	10	30
	SCFM	5.5	16.4	38.3	125.8	5.5	16.4
Column Inner Diameter	mm	100	150	200	300	100	150
Packed Height	mm	2 x 1000	2 x 1000	2 x 1000	2 x 1000	1000	1000
Size of Raschig-Rings	mm x mm	10 x 10	15 x 15	20 x 20	30 x 30	10 x 10	15 x 15
Level Tank w/ DN25 sanitary conn	L	80	80	80	80	20	20
	Gallon	21	21	21	21	5	5
Cooler Area	m ²	0.3	0.5	0.7	1	0.3	0.5
	ft ²	3.2	5.4	7.5	10.8	3.2	5.4
Max. Cooling Water Flow	gpm	5.3	9.7	13.2	9.7	5.3	9.7
Power required / pump 120/208, 60Hz	HP	0.25	0.25	0.25	0.25	0.25	0.25
System Overall Dimensions:							
Height	inches	79	79	79	89	95	95
Width	inches	67	71	75	89	39	39
Depth	inches	39	39	39	39	28	28

Note, dimensions will vary with selected options and custom configurations are available.

COMMON OPTIONS:

- Equipment for Class 1, Division 1 rated area
- PLC controls with HMI
- Ethernet IP Communications
- Continuous monitoring of flow / level / temperature
- Audible / Visual Alarms
- Automated purging and recharging of absorbent/scrubbing fluid
- Protective splash shield
- Safety / containment hub

At DDPS, we also offer waste gas treatment solutions for many other applications, such as:

- Drying of SO₂ or Cl₂ using sulfuric acid
- Absorption of HCl, HBr, SO₃, and Cl₂, Br₂, SO₂
- Combined absorption of HCl and SO₂
- NO_x-Absorption
- Absorption of ethylene oxide or ammonia
- Absorption and recovery of volatile organic components (VOC's), e.g. solvents

Custom processes / solutions are addressed with the customer through the services of DDPS Global Process Engineering group, and support of our test center.

Please contact us with your application.



Mobile Single Column Unit

De Dietrich

PROCESS SYSTEMS



De Dietrich Process Systems is a leading provider of Process Equipment, Integrated Systems, and Engineered Solutions to the bulk chemical, fine chemical, and pharmaceutical industries. Our experience enables us to offer a wide range of high-quality solutions, products, and services for a variety of manufacturing processes. We provide a full spectrum of support, from process optimization to complete turnkey systems. Our Integrated Systems team can design, engineer and build a safe and reliable system that meets your unique process requirements, schedule and budget.

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