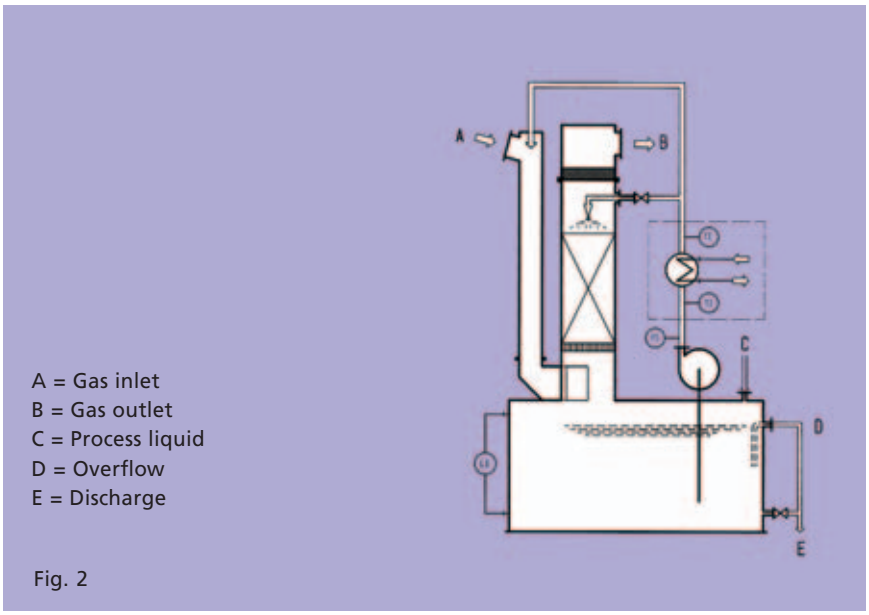
Compact Gas Scrubber KGW

Fig. 1 Compact gas scrubber KGW DN150 and KGW DN150 W



A = Gas inlet
B = Gas outlet
C = Process liquid
D = Overflow
E = Discharge

Fig. 2

Applications

Compact gas scrubbers are used to clean flue gas flows and are to be found in the most varied areas of industry. Compact gas scrubbers are designed to absorb harmful substances, cool gases, condense vapours and separate dusts. In addition, chemical engineering processes can be carried out using compact gas scrubbers, e.g. the recovery of valuable materials and the manufacture of chemical products.

Function

Compact gas scrubbers are exceptional among the gas scrubbers. They work according to the injection principle and they are the only scrubbers which produce no loss in pressure but rather an increase in pressure in the gas flow. Therefore, in general terms, when using a compact gas scrubber, no mechanical ventilator is needed to extract and convey the gases. The scrubbing liquid acts as the motive medium.

The gas/liquid mixture is separated in a centrifugal separator which is arranged downstream. The latter is designed in such a way that the formation of foam is largely avoided.

The scrubbing liquid flows back into the liquid supply tank from where it is recycled by means of a submergible pump. In addition, the gas flows through a counter-flow scrubbing column arranged downstream which is provided with the scrubbing liquid from the circulation pump or with fresh scrubbing liquid if necessary.

According to requirements, a packed column, a tray column or a structured packing column can be used. Entrained liquid droplets are separated in a demister arranged downstream before the gas outlet. In special cases the jet scrubber can also be equipped with a quench for cooling the hot gas.

The solution or reaction heat which occurs during the scrubbing process can be discharged either through the continuous addition of fresh liquid with the corresponding liquid overflow or through the installation of a cooler in the form of a plate heat exchanger.

Design

Compact gas scrubber KGW is supplied in 4 standard sizes and 2 designs. Its modular construction lends itself to being easily extended and adapted to the given operating conditions.

GEA Wiegand GmbH
www.gea-wiegand.com
76275 Ettlingen · Germany · Tel.: +49 7243 705-0
Fax: +49 7243 705-330 · E-mail: info.gewi.de@geagroup.com

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Variations

Constructional design and possibilities for extension:

Scrubber tube

- o Horizontal and vertical gas inlet
- o Rinsing ring at the vertical gas inlet to the rinsing process and to the cooling of the scrubbing tube inside wall

Supply tank

- o Rectangular and round designs

After-absorption column

- o Packed column
- o Structured packing column. The use of packing can be an advantage for reducing the height of the construction, pressure loss or quantity of scrubbing medium.
- o Tray column
- o Aerosol separator

In special operating cases it is necessary to separate the aerosols. Aerosols are not separated using jet scrubbers; it is therefore necessary to use suitable aerosol separators in the form of special units. These units are generally arranged downstream the absorption column.

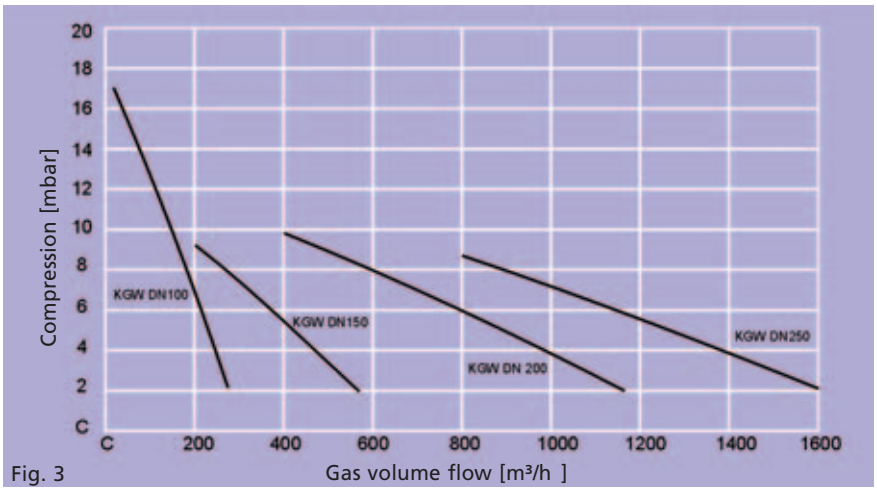

Fig. 3

Performance curve for compact gas scrubbers of standard design

Circulation pumps

- z Submergible pump
- z External circulation pump

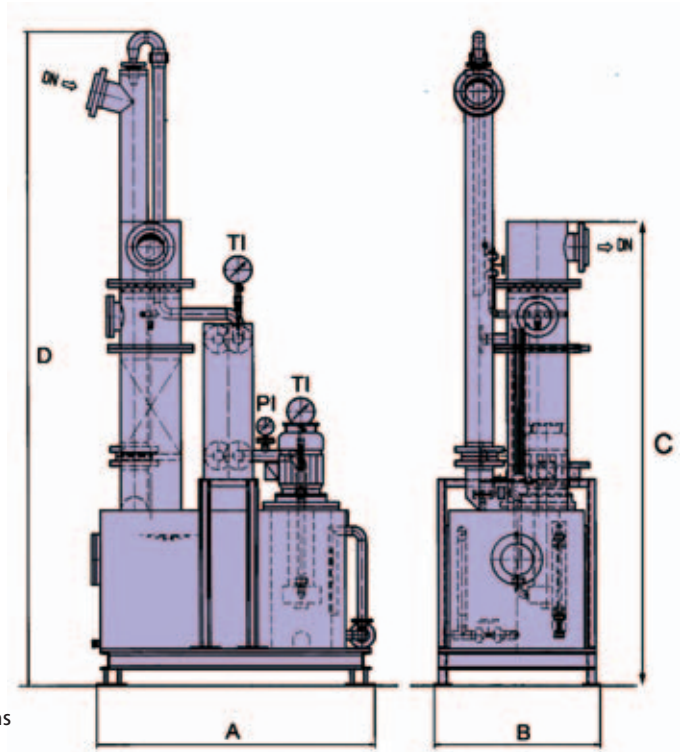

Fig. 4
main dimensions in mm

Suction flow, main connections and overall dimensions

Type	Suction flow in m³/hr	Recirculated liquid flow in l	Gas inlet diameter DN	Main dimensions in mm			
				A	B	C	D
KGW DN100	50 - 230	400	100	1200	800	2660	2900
KGW DN100 W	50 - 230	700	100	1600	930	2750	3350
KGW DN150	100 - 500	400	150	1200	800	2660	3400
KGW DN150 W	100 - 500	700	150	1600	930	2750	3850
KGW DN200	300 - 1000	1000	200	1750	1000	3950	4700
KGW DN200 W	300 - 1000	1500	200	2200	1100	3950	4700
KGW DN250	800 - 1500	1250	250	2000	1000	4000	5000
KGW DN250 W	800 - 1500	1750	250	2500	1100	4000	5000

Measuring and control technology

If required, the compact gas scrubber can be equipped with all the instruments needed in process technology in terms of measuring and control instruments.

Standard equipment

Jet scrubber	PP
Centrifugal separator with pump supply tank and counter-flow scrubbing column	PP
Nozzles, demister and packing	PP (wetted parts)
Submergible pump	PP (wetted parts)
Circulation pump	PP
Liquid piping and shut-off fittings	PP
Manometer	PP / PTFE / stainless steel
Trolley	steel

Applications

- o Gas conveyance
- o Gas saturation and cooling
- o Hot gas quenching
- o Condensation
- o Separation of noxious substances (absorbtion)
- o Solid separation (de-dusting)

Advantages

- o Broad range of application
- o Auto-suction
- o No pressure loss
- o Wide load range, efficient partial load
- o Easily combined and extended
- o Available in almost any material
- o Resistant to fouling
- oz High reliability, little maintenance

For all inquiries please use our questionnaire .

GEA Wiegand GmbH
www.gea-wiegand.com
76275 Ettlingen · Germany · Tel.: +49 7243 705-0
Fax: +49 7243 705-330 · E-mail: info.gewi.de@geagroup.com