

- Environmental Protection
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## DGE's Standard Series DGE-FBAD-L for lying fixed-bed adsorbers for exhaust air decontamination

**DGE's fixed-bed adsorbers** are dimensioned as single or multiple bed plants. The horizontal design allows you to clean large quantities of air to below 50 to 100 mg/m<sup>3</sup> with low crude gas concentration.

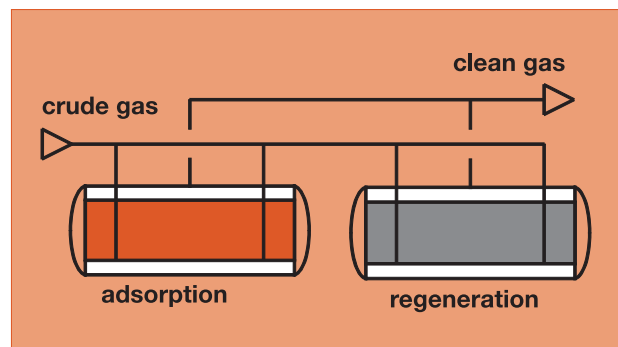
**DGE's fixed-bed adsorbers** are built in a round design and the technical design for the steps of adsorption and regeneration are made by PC programs.

The interaction among the individual components is taken into consideration for multiple-component mixtures with adsorption. The breakthrough curves are calculated based upon the IAST method and especially developed layer models in order to ascertain the bed height.

DGE's horizontal design fixed-bed adsorbers are regenerated to a great extent with steam. The adsorber bed has to be cleaned again and provided in processed fashion with regeneration for reliable adsorption. For stable compliance with the separation performance clean gas values specified, the adsorption and regeneration have to be designed with a sufficient back-up for equalising load fluctuations.

Components that have a disturbing effect upon adsorption such as dust, acidic or alkaline components, oils and high boilers have to be removed in accordance with the adsorption agent. All types of activated carbon, resins, molecular screens, zeolites, etc. may be used as adsorption agents. Apart from the usual regeneration techniques with steam or hot gas, we also integrate processes for deacidification and extracting activated carbon as required.

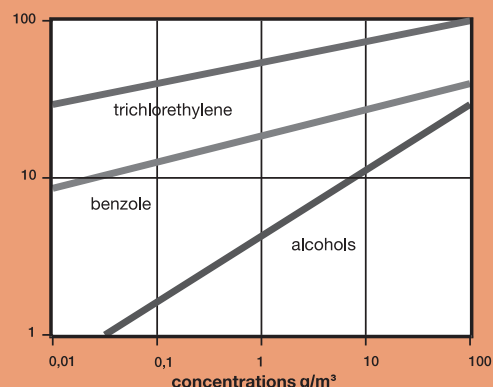
**DGE's fixed-bed adsorbers** are made of C-steel, stainless steels, plastics or with a lining depending upon the requirements made of resistance to corrosive media.



### DGE's adsorption technique

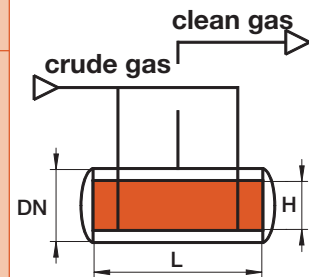
with lying fixed-bed adsorbers for large quantities of exhaust air for recovering solvents and reliably complying with clean gas values.

Adsorption Isotherms for Various Components of Activated Carbon (absorption capacity in %)



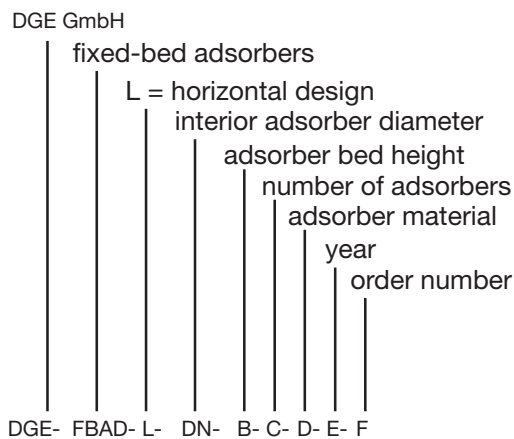
There are the following standard subassemblies for using DGE's horizontal fixed-bed adsorbers for exhaust air decontamination:

subassembly	DN	L	H quantity of exhaust air m <sup>3</sup> /h		bed height mm	
DGE-FBAD-L	1.500	3.000	2.500	-	6.500	500 - 600
DGE-FBAD-L	1.500	6.000	5.000	-	13.000	500 - 600
DGE-FBAD-L	2.000	3.000	3.250	-	8.500	600 - 800
DGE-FBAD-L	2.000	6.000	6.500	-	17.000	600 - 800
DGE-FBAD-L	2.400	3.000	3.900	-	10.500	800 - 1.000
DGE-FBAD-L	2.400	6.000	7.800	-	21.000	800 - 1.000
DGE-FBAD-L	2.400	9.000	12.000	-	32.000	800 - 1.000
DGE-FBAD-L	2.800	6.000	9.000	-	24.000	1.000 - 1.200
DGE-FBAD-L	2.800	9.000	14.000	-	36.000	1.000 - 1.200
DGE-FBAD-L	2.800	12.000	18.000	-	48.000	1.000 - 1.200
DGE-FBAD-L	3.200	8.000	14.000	-	36.000	1.000 - 1.400



The dimensions stated are based upon the standard round design.

#### Typenbezeichnung für liegende DGE-Festbettadsorber



**DGE's testing plants** may be used for piloting complicated tasks. The pilot plants ascertain the breakthrough curves under operating conditions using varying adsorbing agents and achieving low clean gas values. This ascertains the regeneration technique with the lowest costs based upon the existing basic operating conditions. This also takes the necessity of returning drying air for the individual component into account.

Model designation for **DGE's horizontal fixed-bed adsorbers**, DGE's fixed-bed adsorbers system solutions for environmental protection.

**DGE** has its own cleaning techniques for special area in exhaust air decontamination as well as many years of know-how and comprehensive references.

We would be glad to advise you as a supplier of systems and together with you we will work out the most favourable plant strategy for your needs. We optimise operating resource consumption and lower disposal costs. We especially investigate existing possibilities for process development with closed material cycles.

The system developed by **DGE** of adaptive process control ensures you optimum regeneration of activated carbon while guaranteeing low operating costs. It also guarantees a reliable mode of plant operation for all operating states.

We offer our customers a service for especially sensitive plant systems with our **mobility guarantee** and repair guarantee within 24 hours.