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Диффузионные сушильные установки водосодержащих аэрозолей DDU 570/L, DDU 570/H. Технические характеристики



Diffusion Dryer DDU 570

The Diffusion Dryer DDU 570 has been developed mainly as additional equipment for the Aerosol Generators produced by Topas GmbH. The diffusion dryer consists of an Acryl tube with 2 caps on its ends and tube connectors. In the operation status the dryer is filled with Silica gel. The aerosol to be dried is streaming through 3 screen pipes which are surrounded by Silica Gel (with indicator) serving as drying agent. The Silica gel causes a very dry atmosphere. The water in the aerosol moves into the dry environment by the effect of diffusion. Because the aerosol does not get into direct contact with the drying agent only a very low particle loss occurs.

Special Advantages

- Three mesh sleeves are greatly increasing the surfaces area for drying
- Minimal particle loss, as aerosol is not in direct contact with the Silica gel
- Easy and effective principle (diffusion drying)
- Desiccant is thermally regenerated easily
- Simple replacement of the Silica gel
- The transparent outer shell allows a quick check of the desiccant

Applications

- Drying of aqueous aerosols
- In connection with Atomizer Aerosol Generators Series ATM:
Generation of calibration aerosols with aqueous suspensions of reference particles
- In connection with an atomizer:
used for nuclei source of the condensation aerosol generators SLG 250 and SLG 270

The diffusion dryer was developed for applications under ambient pressure condition. It is not suitable for pressure conditions.



Illustration of the mesh sleeves of the DDU 570

Specifications

Regenerating the Silica gel

With cumulative water vapour loading of the Silica gel the intake capacity falls. The saturation state of the Silica gel is shown by means of its colour indicator:

Orange	Silica gel dry and ready for use
White/Colourless	Silica gel saturated and should be regenerated

To remove the silica gel from the dryer the following steps have to be carried out:

1. Disconnect the dryer from other tubing.
2. Screw off the cap-screw on the dryer's top, pour out the used Silica gel.
3. Fill in the new Silica gel into the opened dryer by means of a funnel until the dryer is completely full.
4. Close the dryer column with the cap-screw.
5. Purge the dryer with the clean air.

The Silica gel can be regenerated in a drying cupboard. The dried Silica gel can be recognised by the orange colour. To avoid taking up water from the ambient air the Silica gel must be allowed to cool down in a desiccator.

Technical Data

	DDU 570/H	DDU 570/L
Dimensions (Ø x height)	70 x 475 mm	70 x 253 mm
Mass of drying agent	approx. 830 g	approx. 410 g
Max. volume flow	10 l/min (600 l/h)	5 l/min (300 l/h)
Max. counter pressure	100 mbar	
Max. ambient temperature	40 °C	
Max. aerosol temperature	40 °C	
Hose connector	8 mm	
Weight (without silica gel)	0.94 kg	0.72 kg

Physical Data of the Silical gel*¹

Colour	Orange
Smell	Odourless
Bulk density	approx. 800 kg/m ³
Granular size	Granules / 2 – 5 mm
Loss on drying (150°C, 3 h)	max. 2 %
Water adsorbing capacity	min. 25 %
Colour change	from orange to colourless
Melting Point	>1000 °C
Flash Point	Not applicable
Substances to be avoided	strong oxidizing agents

* contains heavy metal free moisture indicator



Filling screw of the DDU 570



Dry Silica Gel in the DDU 570

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