

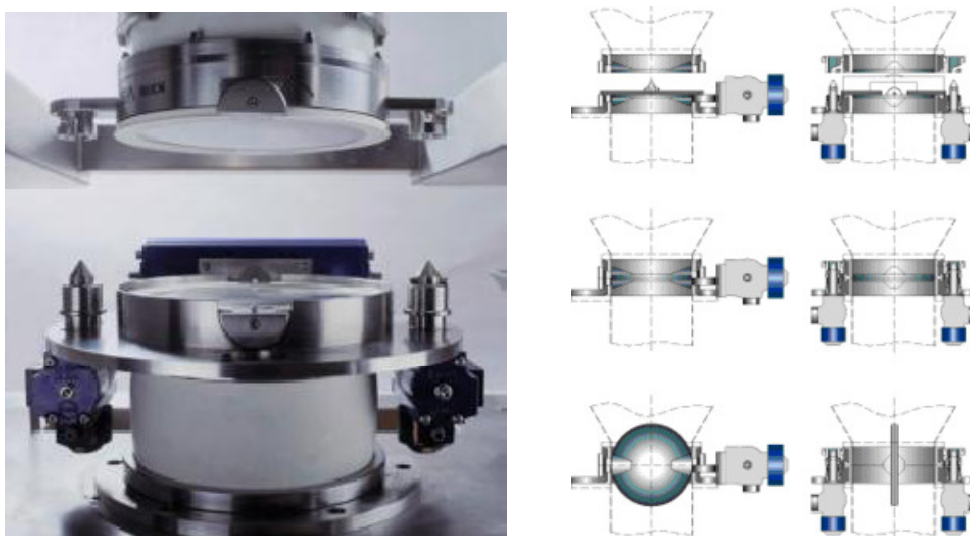
## LOADING OF NANOCYL™ NC 7000 USING A BUTTERFLY VALVE SYSTEM

Following the recommendations, based on the precautionary principle, this procedure intends to minimise the potential exposure of workers. With this procedure of containment, the possible exposure of workers to the carbon nanotubes is strongly limited and can be considered as negligible.

The NC7000 are packed in LDPE plastic bags of various sizes. Standard packaging is 2 kg. These bags are closed by a strip or a binder. The **feeding system of carbon nanotubes** is based on the use of a butterfly valve that can be separated in two closed parts (see the scheme hereafter)

The lower part is permanently fixed to the feeder of the extruder. As the bags containing carbon nanotubes are closed in such a way that the distance between the closing bond and the extremity of the bag is large enough to allow its fixation to the butterfly valve, the second part of the valve is fixed with a collar to the bag that contains the carbon nanotubes.

The safety bond closing the bag is then cut. As a safety device does not allow the opening of the valve when the two parts are separated or not correctly linked, the carbon nanotubes can not be in contact with the atmosphere.



The two parts of the valve are then linked together via a device that ensures a hermetic link. The valve is opened and the carbon nanotubes can flow under gravity from the bag to the feeder. When the bag is empty, the valve is closed and the two parts separated. It is impossible to separate the two parts of the valve when it is open.

The empty bag and the part of the valve attached to it are transported into a room where the empty bag is separated from the valve part in a hood. A new bag is then connected with a collar to the valve part and the process can restart. If such a room is not available, a dust extraction system should be installed on the top of the feeder to remove any powder residues that may be liberated during the undocking of the two

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