Moisture Cartridge

General

Storage and supply tanks for metering pumps must are available in gas-tight versions where agressive, effervescent and toxic agents are to be used.
Chemicals which would deteriorate in character due to the penetration of atmospheric moisture also need to be suitably stored in tanks.

The requirement for gas-tightness or insulation from the atmosphere does not, however, mean that the contents of the tank should be hermetically sealed off from the atmosphere, since otherwise the tank might explode when being filled by means of a metering or centrifugal pump, or might be compressed by the atmospheric pressure while the content was being extracted by a pump.
Moisture cartridges avoid pressure load on chemical tanks and also prevent both, moisture from entering the tank and also the emission of any chemical into the atmosphere during filling.

Silica gel as a moisture absorbent

The moisture cartridge is filled with granular silica gel, which allows sufficient air to circulate through the trap during filling and emptying while at the same time any moisture entering the supply tank from the atmosphere is absorbed effectively so that the chemical is not affected. The use of silica gel is recommended, for instance, for sulphuric acid supply tanks.

Activated carbon as an absorbent for effervescent media

Due to its high intrinsic porosity and thus extensive surface area, activated carbon has a very strong adhesive effect on gases. During filling of the chemical tanks gases pushed out with the air by the carbon granules are absorbed by the activated carbon. Only the air emerges.

Assembling

The moisture cartridges can be mounted directly on the tanks (fig. 1 and 2) or fitted with brackets to the wall (fig. 3). Then wall clamps and hose liners are required. A hose liner is also necessary for the moisture cartridge mounted on the tank (see fig. 2) to lead the air circulation outside through a tubing, for example.

Installation examples

Fig. 1

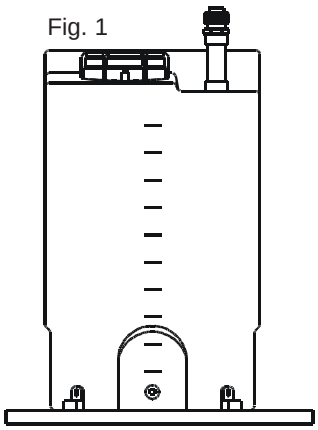


Fig. 2

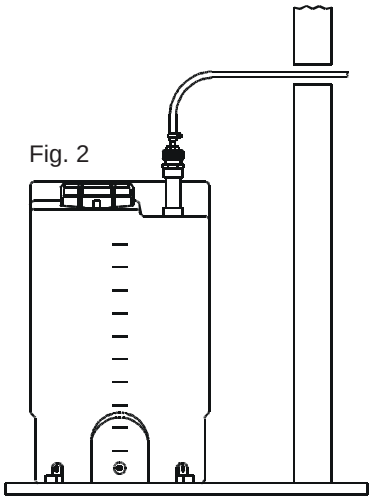
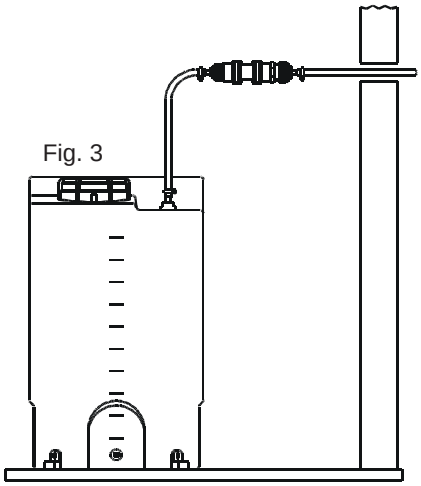


Fig. 3



Moisture Cartridge

Sizing

Moisture traps are available with a capacity of 0.1 and 0.5 litres. Larger sizes can be supplied to on request. The size to be selected does not depend on the size of the supply tank but on the frequency and speed of filling.These parameters determine how quickly the air is expelled from the tank and how much gas or moisture has to be absorbed in a given unit of time. Approximate values are given in the table below.

The silica gel filling changes colour from orage to uncoloured, as it becomes saturated with moisture. The moisture cartridge is transparent to enable a visual inpection.

There is no way of distinguishing when the activated carbon filter is saturated except by an increasingly unpleasant smell. Experience will anable the operator to change the filter in time.

Order Example

A moisture cartridge with silica gel filling is to be used for a 100 liter sulphuric acid container. The 0.1 l version is sufficient for a metering capacity of 1000 liters.

The saturation of the silica gel filling can therefore be expected after a cycle of 10 fillings.

Solution:

Moisture trap cartridge, size 0.1 l	Part No. 12027453
Silica gel filling, 0.1 l	Part No. 28553

Dimensions

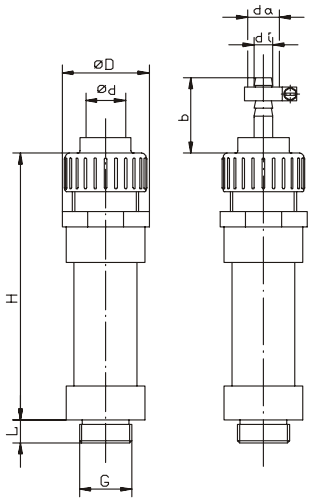


Fig. 1

Fig. 2

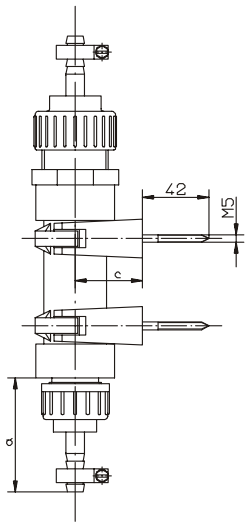


Fig. 3

Size	D	H	G	L	a	b	c	d	di	da
0.1 l	55	173	G 1	15	74	49	43	25	12	16
0.5 l	74	255	G 2	20	83	83	57	40	16	26

Part No.

Size	Fig.	Moisture cartidge	Silicagel filling	Service life (l)	Activated-carbon filling	Mounting kit
		Part No.	Part No.		Part No.	Part No.
0.1 l	A	12027453	28553	1000	28551	24343
	B	12031122				
	C	12031124				
0.5 l	A	12026434	28554	5000	28552	24344
	B	12031123				
	C	12031125				