Chemical vapour locks®
With cartridge system



Absorption of hazardous and pollutant chemical vapours produced during the filling, decanting and draining of closed pressureless storage tanks and containers.

For all current chemicals, acids, lyes, oils and solvents.

For removal of CO2 from air when storing demineralised water or for extracting humidity from gas atmospheres for materials which absorb humidity ($H2SO_4$).

Chemical vapour locks®
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Areas of application for the chemical vapour lock®

In the chemicals industry, decanting and emptying processes involving liquid chemicals is a daily activity in many different types of application. It is not a rare occurrence for large quantities of poisonous vapours to be released in the process; these can be harmful to health and can form explosive gas-air mixes.

The evaporation rate depends on many factors, but the estimated quantity involved is massive: in Germany alone, around 700 000 – 800 000 tonnes of chemicals (excluding petrol) are decanted every year, and as a result polluting our environment, attacking machinery and also posing a potential health risk. By contrast, using Techap chemical vapour locks for closed storage tanks and containers, transport containers and replacement containers guarantees high levels of operational safety and environmental protection. The dangerous exchange of chemicals is made easy, and safe.

In the standard finish, the chemical vapour locks are PVC containers with a transparent cylinder section, based on a cartridge system. The binding agent which absorbs the harmful vapours which are created is located in the filter bag, which is subsequently disposed of with the used binding agent.

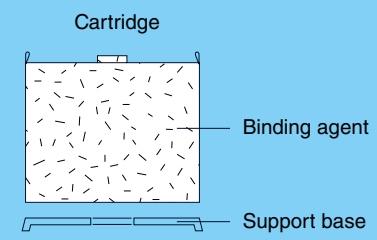
Our wealth of experience of chemical materials, their characteristics and the legal regulations pertaining to them make us the ideal partner for companies in the chemicals value-added chain.

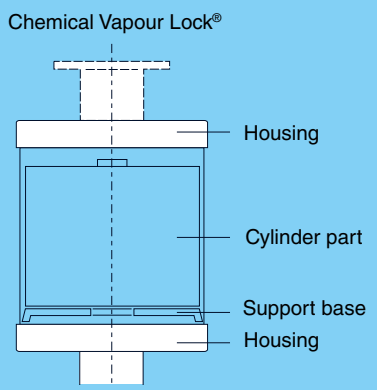
Chemical vapour locks®
Design and advice on installation

Design

All our chemical vapour locks are based on the cartridge system. In this design, the binding agent is already contained in the filter bag, which is subsequently disposed of with the used binding agent. In the standard finish, the housing is in PVC with a transparent cylinder section. For models with the additional label "G", the housing is in PP, with a glass cylinder. The housing can also be supplied in inox (e. g. 1.4571 stainless steel). No materials containing asbestos or silicone are used in the manufacture of these items.

As a special finish, chemical vapour locks can also be manufactured to withstand pressures of up to 6 bar. Models above the size of the SL5 can also be equipped for use in outside situations, with a self-regulating heating element. The element is then integrated into the filter bag. To protect the binding agent against the rain, a rain protector is required. Other than to change the cartridges, no maintenance is needed. The consumption of binding agents BM1 and BM4 is shown by the change in the colour indicators. The depletion of binding agent BM2 can only be determined by measurement or odour test.



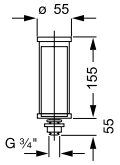
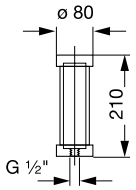
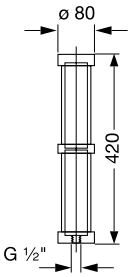
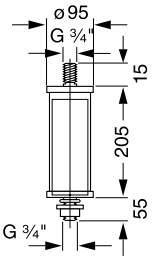
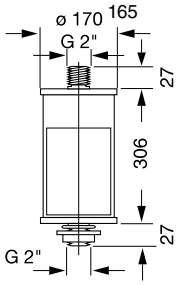
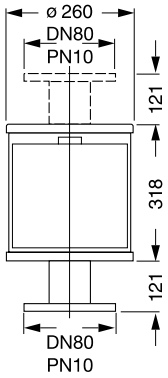
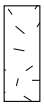
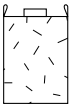
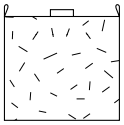


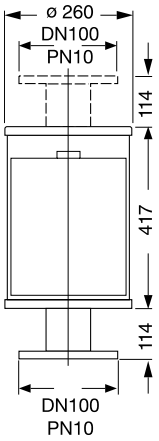
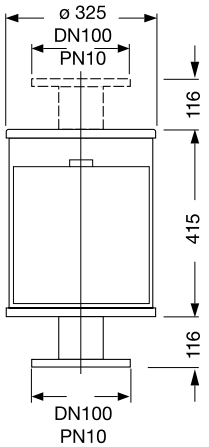
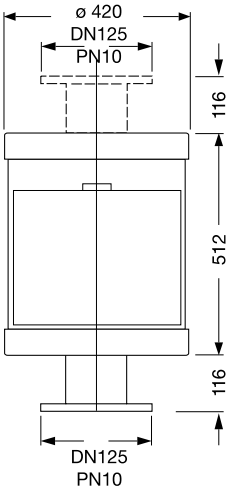
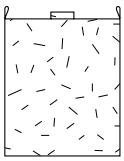
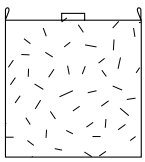
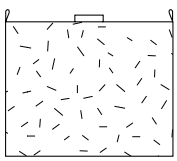
Advice on use and installation

- The storage tank should not be overfilled.
- The liquid must not penetrate into the binding agent or into the cartridge.
- The fill rate as shown in the table should never be exceeded.
- With fill procedures involving compressed air, the chemical vapour lock should always be over-dimensioned by one size, in order to ensure operational safety. Installation of a quick-acting filling safety device is recommended.
- Avoid sudden pressure shocks and impacts or decompressions, especially during filling procedures and when displacing pressure from the supply tank.
- With new plants, the pressure loss in accordance with the nominal flow rate for BM1 is approx. 1 – 14 mbar. For BM2 and BM4, it is 0.5 – 10 mbar (at nominal velocity).
- It is recommended to change the binding agents at least once a year, or more often if necessary.
- The heating should only be activated for the BM1 and BM4 binding agents if there is a risk of frost, while no heating is required for BM2 due to its poor thermal conductivity; in this case, on-site insulation of the vapour lock is recommended.
- With the cartridge design, the heating element is integrated into the filter bag. On site, the binding agent – e. g. BM4 – is then filled into the installed filter bag. These filter bags are to be replaced after they have been filled twice with binding agent; if binding agent BM1 and BM2 is used, then the filter bag must be replaced after each use.
- The base glued to the cylinder part is always at the bottom. With the PPH finish – e. g. SL11 – the sealed-in part is similarly to be used as the base.
- If being set up outside, the chemical vapour locks must be protected against rain and sun using our rain protector, as well as against frost.
- Avoid temperatures above 50 °C for PVC products, 80 °C for the PP finish, and 40 °C when using binding agent BM1.
- Take note of the possible heating of the storage tank through insolation. Black tanks can be heated to temperatures of up to 80 °C. This temperature generates significant volumes of vaporised gas. Drain lines must be installed with a downward gradient away from the chemical vapour lock, so that no condensate can flow back. Condensate caused by temperature gradients must be avoided at all costs.
- Always follow instructions and regulations, such as DIN, UVV, VDE, VBF, ZVEI and TA-Luft, and other national and international specifications (e. g. German water conservancy law – WHG).

Chemical vapour locks®
For storage tanks and containers

Overview of types of chemical vapour locks for storage tanks and containers

Type	SL0K PVC	BL1G	2 x BL1GD	SL1K	SL3K	SL5K
Max. air quantity	200 litre/h	500 litre/h	500 litre/h	1500 litre/h	5000 litre/h	15000 litre/h
Dimensions (in mm) SL5K and above with one base flange, optionally with two flanges						
Matching cartridge types with 1µ filter fineness (filter unit for single use)						
Type BM1	BM1K0	BM1KBL	BM1KBL	BM1K1	BM1K3	BM1K5
Type BM2	BM2K0	BM2KBL	BM2KBL	BM2K1	BM2K3	BM2K5
Type BM4	BM4K0	BM4KBL	BM4KBL	BM4K1	BM4K3	BM4K5

Type	SL7K	SL9K	SL11K
Max. air quantity	30000 litre/h	72000 litre/h	150000 litre/h
Dimensions (in mm) SL5K and above with one base flange, optionally with two flanges			
Matching cartridge types with 1µ filter fineness (filter unit for single use)			
Type BM1	BM1K7	BM1K9	BM1K11
Type BM2	BM2K7	BM2K9	BM2K11
Type BM4	BM4K7	BM4K9	BM4K11

Flanges as flat face with holes according to DIN or ANSI. Other connectors, e. g. clamp connectors on request.

Order data for pressureless chemical vapour locks with the cartridge system

Type	Housing				Standard binding agent			Weight
	Max air quantity	Material Lid/Cylinder	Flange/ Screw thread	Order No. *)	BM1K Order No.	BM2K Order No.	BM4K Order No.	
SLOK	200 l/h	PVC/PVC	G 3/4" PP	860 4008	860 4051	860 4052	860 4080	0.2 kg
BL1-G	500 l/h	PTFE/Glass	G 1/2"	860 0106	860 4058	860 4044	860 4033	0.6 kg
2x BL1-G	500 l/h	PTFE/Glass	G 1/2"	860 0004	860 4058	860 4044	860 4033	1.0 kg
SL1K	1500 l/h	PVC/PVC	G 3/4"	860 4010	860 4011	860 4055	860 4081	0.3 kg
SL1KVA-G	1500 l/h	SS 316TI/Glass	G 3/4" PP	860 4135	860 4011	860 4055	860 4081	1.0 kg
SL1KVA-G	1500 l/h	SS 316TI/Glass	O	860 4235	860 4011	860 4055	860 4081	1.9 kg
SL1.2KVA-G	1500 l/h	SS 316TI/Glass	O O	860 5235	860 4011	860 4055	860 4081	2.8 kg
SL3K	5000 l/h	PVC/PVC	G 2"	860 4040	860 4042	860 4056	860 4082	1.0 kg
SL3KPP-PVC	5000 l/h	PP/PVC	G 2"	860 4140	860 4042	860 4056	860 4082	1.2 kg
SL3KPP-G	5000 l/h	PP/Glass	G 2"	860 4034	860 4042	860 4056	860 4082	2.2 kg
SL3KVA-G	5000 l/h	SS 316TI/Glass	O	860 4251	860 4042	860 4056	860 4082	4.5 kg
SL3.2KVA-G	5000 l/h	SS 316TI/Glass	O O	860 5251	860 4042	860 4056	860 4082	6.3 kg
SL5K	15000 l/h	PVC/PVC	O	860 4045	860 4046	860 4047	860 4083	2.8 kg
SL5.2K	15000 l/h	PVC/PVC	O O	860 4060	860 4046	860 4047	860 4083	3.5 kg
SL5KPP-PVC	15000 l/h	PP/PVC	O	860 4145	860 4046	860 4047	860 4083	3.0 kg
SL5.2KPP-PVC	15000 l/h	PP/PVC	O O	860 4160	860 4046	860 4047	860 4083	3.3 kg
SL5KPP-PMMA	15000 l/h	PP/PMMA	O	860 4143	860 4046	860 4047	860 4083	3.3 kg
SL5.2KPP-PMMA	15000 l/h	PP/PMMA	O O	860 4142	860 4046	860 4047	860 4083	3.6 kg
SL5KPP-G	15000 l/h	PP/Glass	O	860 4069	860 4046	860 4047	860 4083	4.0 kg
SL5.2KPP-G	15000 l/h	PP/Glass	O O	860 4141	860 4046	860 4047	860 4083	4.5 kg
SL5KVA-PMMA	15000 l/h	SS 316TI/PMMA	O	860 4252	860 4046	860 4047	860 4083	6.4 kg
SL5.2KVA-PMMA	15000 l/h	SS 316TI/PMMA	O O	860 5252	860 4046	860 4047	860 4083	8.7 kg
SL5KVA-G	15000 l/h	SS 316TI/Glass	O	860 4253	860 4046	860 4047	860 4083	7.7 kg
SL5.2KVA-G	15000 l/h	SS 316TI/Glass	O O	860 5253	860 4046	860 4047	860 4083	10.0 kg
SL7K	30000 l/h	PVC/PVC	O	860 4070	860 4076	860 4071	860 4084	3.2 kg
SL7.2K	30000 l/h	PVC/PVC	O O	860 4078	860 4076	860 4071	860 4084	4.0 kg
SL7KPP-PVC	30000 l/h	PP/PVC	O	860 4170	860 4076	860 4071	860 4084	3.0 kg
SL7.2KPP-PVC	30000 l/h	PP/PVC	O O	860 4146	860 4076	860 4071	860 4084	3.5 kg
SL7KPP-PMMA	30000 l/h	PP/PMMA	O	860 4173	860 4076	860 4071	860 4084	3.3 kg
SL7.2KPP-PMMA	30000 l/h	PP/PMMA	O O	860 4172	860 4076	860 4071	860 4084	3.8 kg
SL7KPP-G	30000 l/h	PP/Glass	O	860 4179	860 4076	860 4071	860 4084	5.3 kg
SL7.2KPP-G	30000 l/h	PP/Glass	O O	860 4171	860 4076	860 4071	860 4084	5.9 kg
SL7KVA-PMMA	30000 l/h	SS 316TI/PMMA	O	860 4263	860 4076	860 4071	860 4084	7.6 kg
SL7.2KVA-PMMA	30000 l/h	SS 316TI/PMMA	O O	860 5263	860 4076	860 4071	860 4084	10.1 kg
SL7KVA-G	30000 l/h	SS 316TI/Glass	O	860 4255	860 4076	860 4071	860 4084	9.2 kg
SL7.2KVA-G	30000 l/h	SS 316TI/Glass	O O	860 5255	860 4076	860 4071	860 4084	11.7 kg
SL9K	72000 l/h	PVC/PVC	O	860 4073	860 4077	860 4072	860 4085	4.8 kg
SL9.2K	72000 l/h	PVC/PVC	O O	860 4074	860 4077	860 4072	860 4085	5.7 kg
SL9KPP-PVC	72000 l/h	PP/PVC	O	860 4147	860 4077	860 4072	860 4085	4.4 kg
SL9.2KPP-PVC	72000 l/h	PP/PVC	O O	860 4148	860 4077	860 4072	860 4085	5.0 kg
SL9KPP-PMMA	72000 l/h	PP/PMMA	O	860 4149	860 4077	860 4072	860 4085	4.8 kg
SL9.2KPP-PMMA	72000 l/h	PP/PMMA	O O	860 5149	860 4077	860 4072	860 4085	5.5 kg
SL9KPP-G	72000 l/h	PP/Glass	O	860 4180	860 4077	860 4072	860 4085	7.8 kg
SL9.2KPP-G	72000 l/h	PP/Glass	O O	860 4194	860 4077	860 4072	860 4085	8.5 kg
SL9KVA-PMMA	72000 l/h	SS 316TI/PMMA	O	860 4254	860 4077	860 4072	860 4085	10.1 kg
SL9.2KVA-PMMA	72000 l/h	SS 316TI/PMMA	O O	860 5254	860 4077	860 4072	860 4085	12.9 kg

O Housing with 1 base flange O O 2 flanges (bottom and top), *) without binding agent
Other connectors, e. g. clamp connectors on request.

Chemical vapour locks®
For storage tanks and containers

Order data pressureless chemical vapour locks with cartridge system

Type	Housing				Standard binding agent			Weight
	Max air quantity	Material Lid/Cylinder	Flange/ Screw thread	Order No. *)	BM1K Order No.	BM2K Order No.	BM4K Order No.	
SL9KVA-G	72000 l/h	SS 316TI/Glass	o	860 4256	860 4077	860 4072	860 4085	14.9 kg
SL9.2KVA-G	72000 l/h	SS 316TI/Glass	oo	860 5256	860 4077	860 4072	860 4085	17.4 kg
SL11K	150000 l/h	PVC/PVC	o	860 4190	860 4094	860 4096	860 4102	8.5 kg
SL11.2K	150000 l/h	PVC/PVC	oo	860 4191	860 4094	860 4096	860 4102	9.8 kg
SL11KPP-PVC	150000 l/h	PP/PVC	o	860 4192	860 4094	860 4096	860 4102	8.4 kg
SL11.2KPP-PVC	150000 l/h	PP/PVC	oo	860 4193	860 4094	860 4096	860 4102	9.0 kg
SL11KPP-PMMA	150000 l/h	PP/PMMA	o	860 5181	860 4094	860 4096	860 4102	13.2 kg
SL11.2KPP-PMMA	150000 l/h	PP/PMMA	oo	860 5182	860 4094	860 4096	860 4102	15.0 kg
SL11KVA-PMMA	150000 l/h	SS 316TI/PMMA	o	860 4257	860 4094	860 4096	860 4102	21.3 kg
SL11.2KVA-PMMA	150000 l/h	SS 316TI/PMMA	oo	860 5257	860 4094	860 4096	860 4102	26.5 kg

o Housing with 1 base flange oo 2 flanges (bottom and top), *) without binding agent
Other connectors, e. g. clamp connectors on request.

Order data pressureless chemical vapour locks, completely inox, suitable for ex-zones

Type	Housing			
	Max. air quantity	Material lid/cylinder	Flange/screw thread	Order No. *)
SL1KVA	1500 l/h	SS 316 TI	G 3/4" PP	860 5360
SL1.2KVA	1500 l/h	SS 316 TI	oo	860 5361
SL3.2KVA	5000 l/h	SS 316 TI	oo	860 5364
SL5.2KVA	15000 l/h	SS 316 TI	oo	860 5365
SL7.2KVA	30000 l/h	SS 316 TI	oo	860 5367
SL9.2KVA	72000 l/h	SS 316 TI	oo	860 5369
SL11.2KVA	150000 l/h	SS 316 TI	oo	860 5370

o Housing with 1 base flange oo 2 flanges (bottom and top), *) without binding agent
Other connectors, e. g. clamp connectors on request.

Order data chemical vapour locks, pressure resistant up to 6 bar

Type	Housing			
	Max. air quantity	Material lid/cylinder	Flange/screw thread	Order No. *)
SL5.2KVA	15000 l/h	SS 316 TI	oo	860 5357
SL7.2KVA	30000 l/h	SS 316 TI	oo	860 5358
SL9.2KVA	72000 l/h	SS 316 TI	oo	860 5356
SL11.2KVA	150000 l/h	SS 316 TI	oo	860 5362

o Housing with 1 base flange oo 2 flanges (bottom and top), *) without binding agent
Other connectors, e. g. clamp connectors on request.