



GENERAL

For introduction of a solid or liquid media into continuously working glass apparatus, systems with graduations are used. Their design is mainly cylindrical to reach a linear graduation. On request conical or spherical variants are available.

The simplest design of feeding systems for liquid media are dropping funnels which are available with or without pressure equalising tube. Pressure equalising tubes are necessary, when different pressures occur or could occur in closed systems during the operation above or below the liquid to be fed. Should dropping funnels alternatively be used for vacuum, a design has to be chosen where the equalising tube is fitted with a single way or three way stopcock for locking. The space above the liquid must be open towards the atmosphere.

Since many processes as e.g. continuously working distillations or kinetic analysis need a constant dropping frequency over a longer period of time and at pressure variations, dropping funnels must be employed. The adjustment of the required feed volume is effected with an interchangeable spindle valve, fitted below the funnel, or with an adjustable glass needle valve, adjustable from the top.

Addition funnels are delivered either with pressure equalising line with single way or three way stopcock or with "Mariott"-tube. The "Mariott"-tube connects the space above the liquid to feed with the atmosphere. For operations under vacuum a design with an additional single way stopcock must be chosen.

Some of these addition funnels are fitted with a silver coated high vacuum insulating jacket permitting the use in low temperature ranges.

Some addition funnels have a suspended level bulb surrounding the original vessel. In this way, a pressure equalising is ensured when fluctuating hydrostatic pressures occur in the apparatus and the dropping speed keeps at a constant level until the vessel is completely drained.

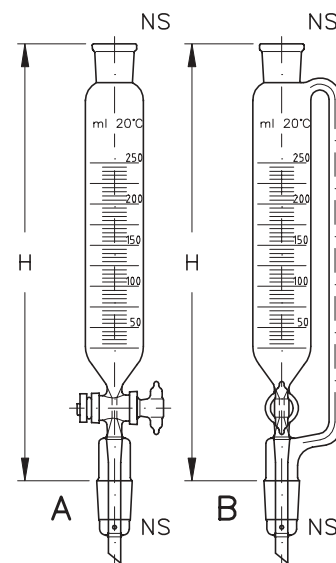
Normally, the connections at the tempering jacket of the funnels described below are glass threads GL 14. On request other tube ends are available.

Additional you will find in this section powder funnels, separating funnels and addition funnels for solids for manual or motor-driven operation.

Dropping funnels, for operation under normal pressure

Design A: Without pressure equalising line is favourably used as feeding vessel. Dropping funnels with pressure equalising line (design B) can be employed when a slight overpressure arises during the vaporisation in the flask and a pressure equalising is necessary between the flask and the dropping funnel.

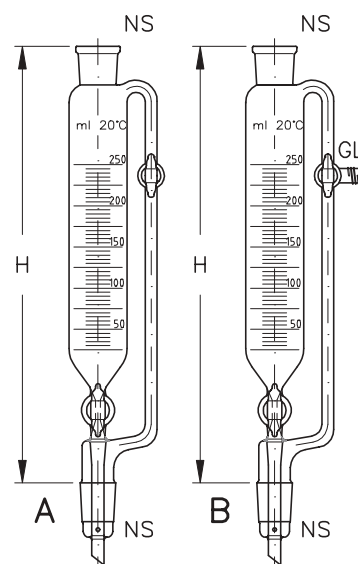
Capacity (ml)	H	NS	Stopcock bore (mm)	Design	Catalogue No.
50	230	14/23	3	A	GSG 01058A 01
50	230	14/23	3	B	GSG 08017 01
100	270	14/23	3	A	GSG 01058A 11
100	290	29/32	3	A	GSG 01058A 05
100	270	14/23	3	B	GSG 08017 11
100	290	29/32	3	B	GSG 08017 05
250	335	29/32	4	A	GSG 01058A 07
250	335	29/32	4	B	GSG 08017 07
500	380	29/32	4	A	GSG 01058A 08
500	380	29/32	4	B	GSG 08017 08
1000	430	29/32	6	A	GSG 01058A 09
1000	430	29/32	6	B	GSG 08017 09



Dropping funnels, for operation under vacuum

For operation under vacuum, dropping funnels are used which are fitted with a single way (design A) or a three way (design B) stopcock in the pressure equalising line. The space above the liquid to feed in must be open towards the atmosphere.

Capacity (ml)	H	NS	GL	Stopcock bore (mm)	Design	Catalogue No.
50	330	14/23	-	3	A	GSG 08017H 01
100	370	14/23	-	3	A	GSG 08017H 11
100	370	29/32	-	3	A	GSG 08017H 05
250	430	29/32	-	4	A	GSG 08017H 07
500	470	29/32	-	4	A	GSG 08017H 08
1000	575	29/32	-	6	A	GSG 08017H 09
2000	685	29/32	-	6	A	GSG 08017H 10
50	390	14/23	14	3	B	GSG 08017T 01
100	430	14/23	14	3	B	GSG 08017T 11
100	500	29/32	14	3	B	GSG 08017T 05
250	500	29/32	14	4	B	GSG 08017T 07
500	550	29/32	14	4	B	GSG 08017T 08
1000	640	29/32	14	6	B	GSG 08017T 09
2000	790	29/32	14	6	B	GSG 08017T 10



All ground joints are also available in other standard sizes, e.g. US-standard.

FUNNELS

Constant addition funnels, with "Mariott"-tube

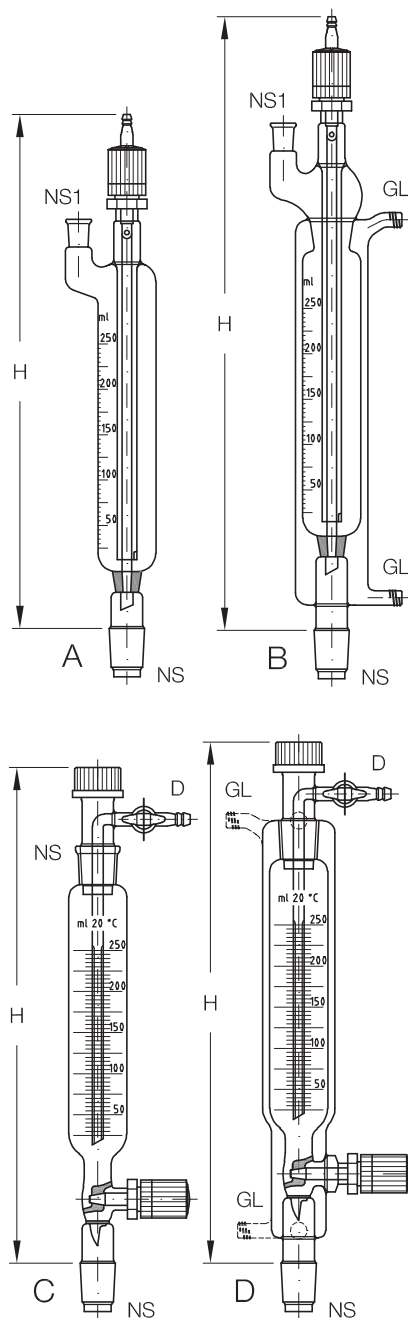
These funnels can be employed for operations under vacuum and under normal pressure. The introduction can be effected either with a spindle valve, adjustable at the top and interchangeable (Design A and B) or via a lateral located glass needle valve GNV 8 (Design C and D). The pressure equalising is granted by the valve spindle which has an opening, or by the "Mariott"-tube with single way stopcock NS 3.

Design B and D are additionally fitted with a tempering jacket.

On request these additional funnels are also available with other ground joints.

Capacity (ml)	H	NS	NS1	D	GL	Design	Catalogue No.
50	330	29/32	14/23	-	-	A	SAA 08050 11
50	390	29/32	14/23	-	14	B	SAA 08051 21
50	320	29/32	-	11	-	C	LSG 08054 01
50	330	29/32	-	11	14	D	LSG 08055 01
100	370	29/32	14/23	-	-	A	SAA 08050 12
100	430	29/32	14/23	-	14	B	SAA 08051 22
100	390	29/32	-	11	-	C	LSG 08054 02
100	410	29/32	-	11	14	D	LSG 08055 02
250	430	29/32	14/23	-	-	A	SAA 08050 13
250	500	29/32	14/23	-	14	B	SAA 08051 23
250	450	29/32	-	11	-	C	LSG 08054 03
250	470	29/32	-	11	14	D	LSG 08055 03
500	470	29/32	19/26	-	-	A	SAA 08050 14
500	550	29/32	19/26	-	14	B	SAA 08051 24
500	510	29/32	-	11	-	C	LSG 08054 04
500	530	29/32	-	11	14	D	LSG 08055 04
1000	575	29/32	19/26	-	-	A	SAA 08050 15
1000	640	29/32	19/26	-	14	B	SAA 08051 25
1000	590	29/32	-	11	-	C	LSG 08054 05
1000	610	29/32	-	11	14	D	LSG 08055 05
2000	685	29/32	19/26	-	-	A	SAA 08050 16
2000	790	29/32	19/26	-	14	B	SAA 08051 26
2000	720	29/32	-	11	-	C	LSG 08054 06
2000	740	29/32	-	11	14	D	LSG 08055 06
5000*	820	29/32	-	11	-	C	LSG 08054 07
5000*	840	29/32	-	11	14	D	LSG 08055 07

* Type 5000 ml has a socket NS 45/40.



All ground joints are also available in other standard sizes, e.g. US-standard.

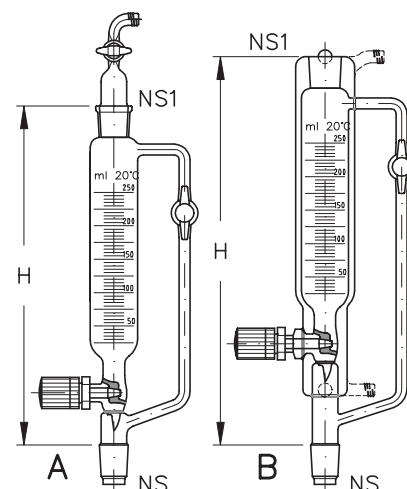
Addition funnels, with pressure equalising line

These funnels can be employed both for operations under vacuum, normal pressure and slight overpressure, since they are fitted with a pressure equalising line with standard stopcock (PTFE key, bore 4 mm) and an additional pressure equalising standard stopcock (towards the atmosphere).

Design B is additionally fitted with a tempering jacket.

On request, these funnels are also available with other ground joints.

Capacity (ml)	H	NS	NS1	Design	Catalogue No.
50	310	29/32	29/32	A	LSG 08054H 01
50	320	29/32	29/32	B	LSG 08055H 01
100	380	29/32	29/32	A	LSG 08054H 02
100	400	29/32	29/32	B	LSG 08055H 02
250	450	29/32	29/32	A	LSG 08054H 03
250	470	29/32	29/32	B	LSG 08055H 03
500	510	29/32	29/32	A	LSG 08054H 04
500	530	29/32	29/32	B	LSG 08055H 04
1000	590	29/32	29/32	A	LSG 08054H 05
1000	650	29/32	29/32	B	LSG 08055H 05
2000	720	29/32	29/32	A	LSG 08054H 06
2000	720	29/32	29/32	B	LSG 08055H 06
5000	820	45/40	29/32	A	LSG 08054H 07
5000	840	45/40	29/32	B	LSG 08055H 07

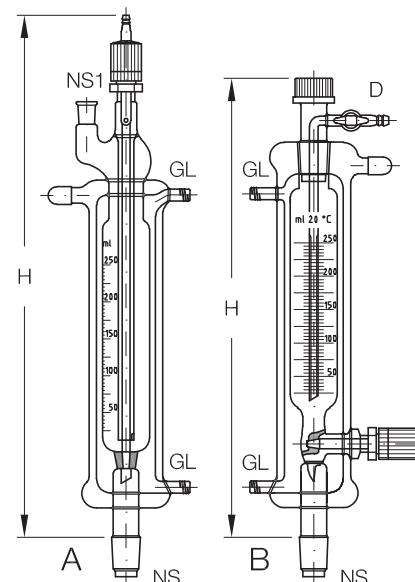


Addition funnels, for low temperature application

These funnels are fitted with a tempering jacket and additionally with silver coated high vacuum insulating jacket.

The introduction can be effected either via a spindle valve, adjustable at the top and interchangeable or via a lateral located glass needle valve GNV 8 (Design B). The pressure equalising is granted by the valve spindle which has an opening or by the "Mariott"-tube with a single way stopcock.

Capacity (ml)	H	NS	NS1	Stopcock bore (mm)	D	GL	Des.	Catalogue No.
100	460	29/32	14/23	-	-	14	A	SAA 08058 01
100	440	29/32	-	3	11	14	B	SAA 08059 01
250	540	29/32	14/23	-	-	14	A	SAA 08058 02
250	500	29/32	-	3	11	14	B	SAA 08059 02
500	590	29/32	19/26	-	-	14	A	SAA 08058 03
500	570	29/32	-	3	11	14	B	SAA 08059 03
1000	680	29/32	19/26	-	-	14	A	SAA 08058 04
1000	650	29/32	-	3	11	14	B	SAA 08059 04



All ground joints are also available in other standard sizes, e.g. US-standard.

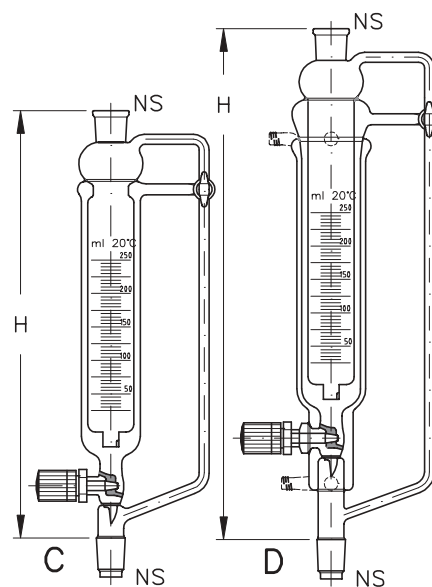
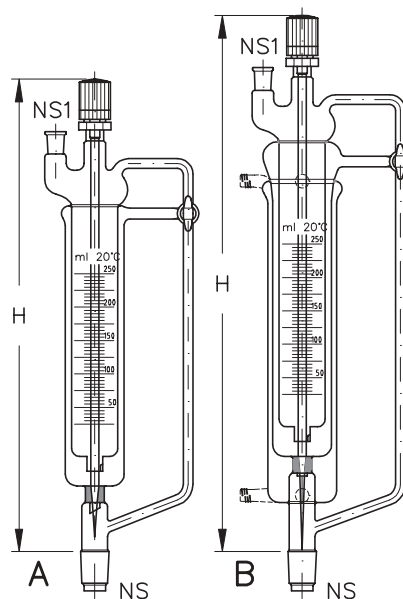
FUNNELS

Addition funnels, with suspended level bulb

These funnels are suitable for operations under vacuum and normal pressure. The original feeding vessel is surrounded with a suspended level bulb. Since this bulb ensures the pressure equalising, these funnels can be used for operations where oscillating hydrostatic pressures occur.

The addition funnels in design A and B have a glass needle valve spindle, adjustable at the top, in design C and D they have a lateral located glass needle valve GNV 8. Design B and D are additionally fitted with a tempering jacket. All of these funnels have a pressure equalising line.

Capacity (ml)	H	NS	NS1	Stopcock bore (mm)	Des.	Catalogue No.
50	425	29/32	-	3	C	SAA 08053A 01
50	505	29/32	-	3	D	SAA 08053 01
100	430	29/32	14/23	3	A	SAA 08056 01
100	540	29/32	14/23	3	B	SAA 08057 01
100	440	29/32	-	3	C	SAA 08053A 02
100	520	29/32	-	3	D	SAA 08053 02
250	510	29/32	14/23	3	A	SAA 08056 02
250	620	29/32	14/23	3	B	SAA 08057 02
250	525	29/32	-	3	C	SAA 08053A 03
250	605	29/32	-	3	D	SAA 08053 03
500	550	29/32	19/26	3	A	SAA 08056 03
500	660	29/32	19/26	3	B	SAA 08057 03
500	570	29/32	-	3	C	SAA 08053A 04
500	640	29/32	-	3	D	SAA 08053 04
1000	650	29/32	19/26	3	A	SAA 08056 04
1000	760	29/32	19/26	3	B	SAA 08057 04
1000	670	29/32	-	3	C	SAA 08053A 05
1000	750	29/32	-	3	D	SAA 08053 05
2000	775	29/32	19/26	3	A	SAA 08056 05
2000	885	29/32	19/26	3	B	SAA 08057 05
2000	795	29/32	-	3	C	SAA 08053A 06
2000	875	29/32	-	3	D	SAA 08053 06




All ground joints are also available in other standard sizes, e.g. US-standard.

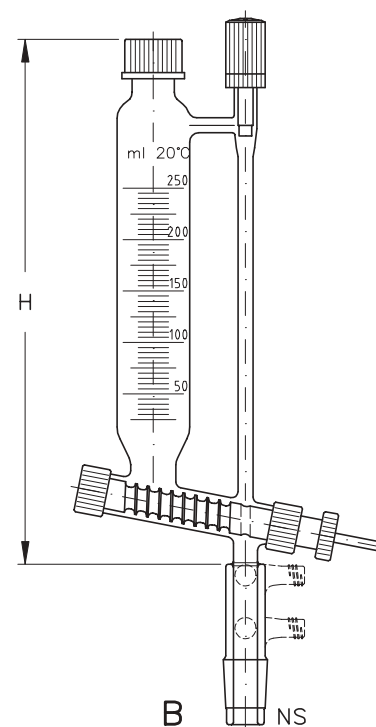
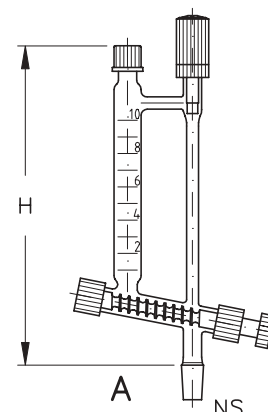
Addition funnels, for solids

This funnel permits the controlled introduction of dry and granular solids with an auger into a reaction vessel. The integrated pressure equalising line, lockable with an PTFE spindle valve, allows an operation both under vacuum and inert gas. The use of threaded connections guarantee an excellent tightness also under vacuum operation and avoids contact with grease.

To avoid a sticking of the auger during operation with boiling solvents, the ground joint cone of the funnel is fitted with a cooling jacket in design B. For strong boiling solvents, a Liebig condenser must be fitted between the addition funnel for solids and the reaction flask in both designs.

 Besides the described manually operated addition funnels for solids, a motor driven variant is available on request. It allows a constant introduction of the solid over a longer period of time.

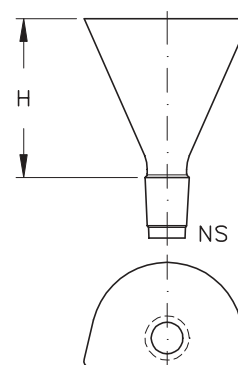
Capacity (ml)	H	NS	Design	Catalogue No.
10	175	14/23	A	SAA 08081 01
25	195	14/23	A	SAA 08081 02
50	275	29/32	B	SAA 08080 01
100	315	29/32	B	SAA 08080 02
250	385	29/32	B	SAA 08080 03
500	415	29/32	B	SAA 08080 04
1000	515	29/32	B	SAA 08080 05



Powder funnels

This powder funnel with one flattened side has proved well for use with three neck flasks. The cone has a short extension to avoid the contact of the powder with the used grease.

Ø mm	H	NS	Catalogue No.
60	70	14/23	GSG 08310 01
100	110	29/32	GSG 08310 03



All ground joints are also available in other standard sizes, e.g. US-standard.

Separating funnels

Separating funnels are manufactured according to DIN 12 451 and preferably used for discontinuous shaking out of solvents.

Capacity (ml)	NS	Stopcock bore (mm)	Catalogue No.
50	14/23	3	ALG 00507 01
100	14/23	3	ALG 00507 02
250	29/32	4	ALG 00507 03
500	29/32	4	ALG 00507 04
1000	29/32	6	ALG 00507 05
2000	29/32	6	ALG 00507 06
5000	45/40	8	ALG 00507 07

