

## 2 LABORATORY GLASSWARE



NORMAG - LABORATORY GLASSWARE



L 302 e.1


## FLASKS

The described range of flasks made of Borosilicate glass 3.3 for manipulators is our standard delivery range.

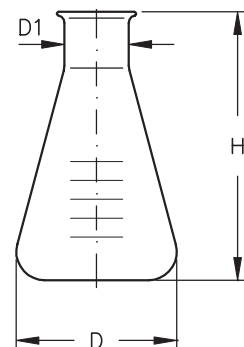
On request we also supply other types according to the current standard.

### Flasks, Erlenmeyer

Capacity and dimensions of these Erlenmeyer flasks with narrow neck, beaded rim and graduation correspond with ISO 1773. On request Erlenmeyer flasks with wide neck are also available.

 Erlenmeyer flasks are not suitable for vacuum.

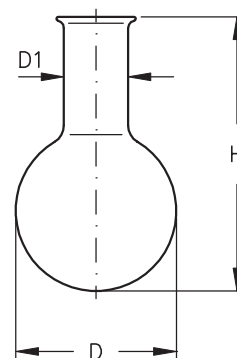
Capacity (ml)	D	D1	H	Pack unit	Catalogue No.
25	42	22	72	10	HAA 60000 03
50	51	22	87	10	HAA 60000 04
100	64	22	105	10	HAA 60000 05
200	78	34	135	10	HAA 60000 06
250	85	34	142	10	HAA 60000 07
500	105	34	178	10	HAA 60000 08
1000	131	42	223	10	HAA 60000 09
2000	166	50	280	10	HAA 60000 10
3000	187	50	310	5	HAA 60000 11
5000	220	50	365	4	HAA 60000 12



## Flasks, round bottom

Capacity and bulb diameter of these flasks, round bottom with narrow neck and beaded rim correspond in bulb diameter and capacity to ISO 1773. The neck sizes can slightly differ.

On request we also supply flasks, round bottom with long necks.




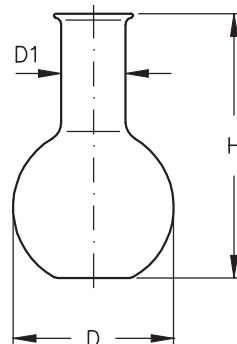
Capacity (ml)	D	D1	H	Pack unit	Catalogue No.
50	51	22	105	10	HAA 60010 04
100	64	22	115	10	HAA 60010 05
250	85	34	145	10	HAA 60010 06
500	105	34	175	10	HAA 60010 07
1000	131	42	210	10	HAA 60010 08
2000	166	50	260	10	HAA 60010 09
4000	207	50	315	10	HAA 60010 10
6000	236	65	355	4	HAA 60010 11
10000	275	65	420	2	HAA 60010 12
20000	365	80	510	1	HAA 60010 13

## Flasks, flat bottom

Capacity and bulb diameter of these flasks, flat bottom with narrow neck and beaded rim correspond in bulb diameter and capacity to ISO 1773. The neck size can slightly differ.

On request we also supply flasks, flat bottom with long necks.

 Flasks, flat bottom are not suitable for vacuum.

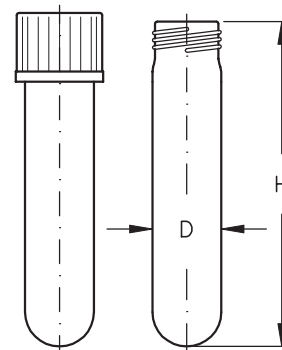


Capacity (ml)	D	D1	H	Pack unit	Catalogue No.
50	51	22	100	10	HAA 60020 04
100	64	22	110	10	HAA 60020 05
250	85	34	140	10	HAA 60020 06
500	105	34	170	10	HAA 60020 07
1000	131	42	200	10	HAA 60020 08
2000	166	50	250	10	HAA 60020 09
3000	191	50	250	10	HAA 60020 10
4000	207	50	300	5	HAA 60020 11
10000	279	65	400	4	HAA 60020 12

## TEST TUBES

These test tubes are fitted with SVL-screw thread and are delivered with a screw cap and PTFE lined rubber disc. All parts are autoclaveable up to 121 °C for two hours.

Capacity (ml)	D	H	SVL-thread	Pack unit	Catalogue No.
8	14	100	13	40	HAA 60070 01
10	16	100	15	40	HAA 60070 02
15	18	100	18	40	HAA 60070 03
20	16	160	15	40	HAA 60070 04
20	20	100	20	40	HAA 60070 05
25	18	180	18	40	HAA 60070 06
30	26	100	25	40	HAA 60070 07
40	20	200	20	40	HAA 60070 08
50	22	200	22	40	HAA 60070 09
70	26	200	25	40	HAA 60070 10



## REACTION VESSELS WITH LABORATORY FLAT FLANGE

Distillation, rectification, extraction and of course reactions are preferably made with vessels. The particular, vessel and lid are fitted with a laboratory flat flange, allowing an easy opening and closing. Suitable for O-ring seals ensuring a safe operation under vacuum and overpressure. They are fitted with a tempering jacket through which the temperature controlling medium can circulate. Our delivery program contains a wide range of pre-fabricated parts made of Borosilicate glass 3.3 and described in catalogue part 5. Furthermore, we offer a wide range of semi-finished products for manipulators.

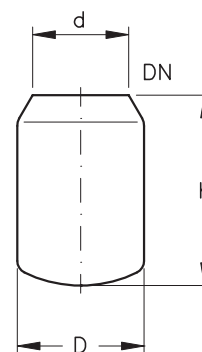
## Blanks

They are used for manufacturing of reaction vessels in short style.



"DN" and "capacity" in the following table refer to the nominal size of the laboratory flat flange to be used and the nominal volume of the ready vessel.

DN	Capacity (l)	D	d	h	Pack unit	Catalogue No.
100	1	106	-	145	1	HAA 60060 03
100	2	140	106	210	1	HAA 60060 04
150	4	200	155	215	1	HAA 60060 05
150	6	215	155	245	1	HAA 60060 06
150	10	240	155	335	1	HAA 60060 07



## Cylinders, round bottom

For manufacturing slim reaction vessels the use of these cylinders are recommended. The flange can be directly set on the rim.

Other diameters are available on request.

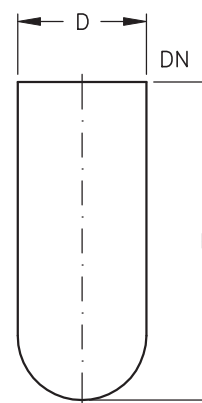


Seals, connections and triple clamp, which fulfils several functions ( separate support of the vessel and lid and connecting both parts) you will find in catalogue part "Components" chapter 5.

If reaction vessels shall be used at higher operating pressures, please contact us to co-ordinate the technical data before delivery of the semi-finished products.

The indication "DN" in the following table refers to the nominal size of the laboratory flat flange to be used.

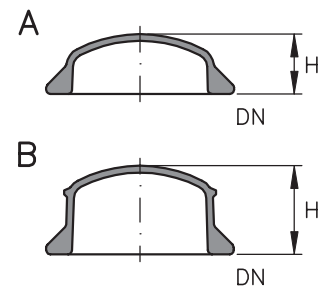
DN	D	h	Pack unit	Catalogue No.
60	65	400	1	HAA 60030 03
100	105	400	1	HAA 60030 04
120	130	400	1	HAA 60030 05
150	160	400	1	HAA 60030 06
200	215	400	1	HAA 60030 07



## Lids

Lids type A are only available in small nominal sizes and not ground, type B are flat ground. Both types do not have a groove. Grooves are only necessary on one side and normally vessels with a groove are used.

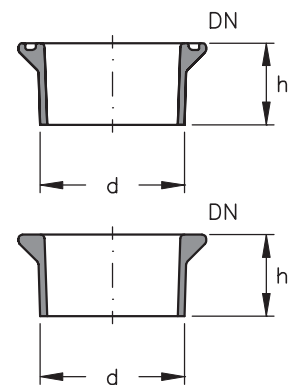
DN	H	Type	Pack unit	Catalogue No.
60	42	A	6	HAA 60040 02
100	44	A	4	HAA 60040 03
100	65	B	3	HAA 60041 02
120	70	B	4	HAA 60041 03
150	70	B	2	HAA 60041 04
200	95	B	2	HAA 60041 05



## Flanges

They are readily ground and available with or without groove according to DIN 12 214.

DN	d	h	Pack unit	Catalogue No. with groove	Catalogue No. without groove
60	68	50	2	HAA 60050 02	HAA 60051 02
100	106	60	2	HAA 60050 03	HAA 60051 03
120	130	60	2	HAA 60050 04	HAA 60051 04
150	155	75	2	HAA 60050 05	HAA 60051 05
200	215	75	2	HAA 60050 06	HAA 60051 06




## ACCESSORIES FOR LABORATORY FLAT FLANGES

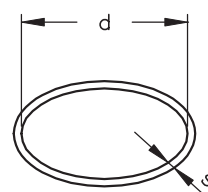
To connect vessel and lid to a reaction vessel ready for use seals and clamps are necessary. Both parts are described below.

### O-ring seals

These O-rings, made of silicone and FEP-lined, have a very high elasticity, ensuring a good recovery and re-use.

On request O-rings made of silicone or Viton are available.


 The indication "DN" in the following table refers to the nominal size of the laboratory flat flange.

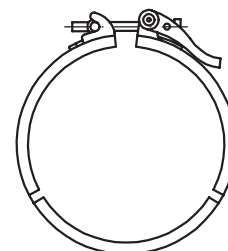


DN	d x s	Pack unit	Catalogue No.
60	75 x 4	1	HAA 60080 02
100	110 x 4	1	HAA 60080 03
120	133 x 4	1	HAA 60080 04
150	157 x 5	1	HAA 60080 05
200	215 x 5	1	HAA 60080 06

### Quick release clamps

They ensure a quick and stable connection of vessel and lid. All quick release clamps are fitted with 3 retaining clips and are made of stainless steel.

 The indication "DN" in the following table refers to the nominal size of the laboratory flat flange.



DN	Pack unit	Catalogue No.
60	1	HAA 60085 02
100	1	HAA 60085 03
120	1	HAA 60085 04
150	1	HAA 60085 05
200	1	HAA 60085 06

### Triple clamp

This triple clamp is especially suitable for vessels with laboratory flat flanges and fulfills several functions at the same time: the connection of lid and vessel and separate support of lid and vessel.

The lid is easy to dismantle e.g. for cleaning, and the vessel is still tightly connected with the frame.

DN	Pack unit	Catalogue No.
60	1	VAB 09490 01
100	1	VAB 09490 02
120	1	VAB 09490 03
150	1	VAB 09490 04
200	1	VAB 09490 05

