

# AERZEN POSITIVE DISPLACEMENT BLOWERS

## VACUUM with pre-inlet cooling

for conveying of air and neutral gases for high vacuum with pre-inlet cooling

**Series GMa / GMb / GMc . . . mHV**

theoretical nominal suction volume flow from 250 m<sup>3</sup>/h to 61.000 m<sup>3</sup>/h



**AERZEN**

# EXPERTS IN VACUUM: AERZEN BLOWERS WITH PRE-INLET COOLING

**AERZEN Positive Displacement Blowers (type Roots) have been manufactured since 1868 and today are highly developed standard production machines designed and adapted to find use in a wide variety of applications.**

## Fields of application

Conveying of air and neutral gases.

Vacuum from 10 mbar to approx. 300 mbar for mHVblowers available in 11 sizes for theoretical nominal intake volume flow from 250 to 61.000 m<sup>3</sup>/h.

The max. admissible differential pressure depends on the thermal load. (See performance diagrams / chart - page 3)

## Design

Housing with an additional third flange on the inlet side for the pre-inlet cooling. Due to the O-ring seals the housing flanges are vacuum-tight, aircooled. Lube oil supply by splash oil lubrication.

## Shaft sealings

Conveying chamber by combined oil slinger- piston ring labyrinth seals. Driving shaft by double radial seal rings with oil barrier.

## Direction of flow (viewed onto driving shaft)

vertical to the bottom

## Drive

Direct coupling with motor or via spur gear, narrow v-belt drive restricted to the smaller pressure differentials.

## Mechanical load

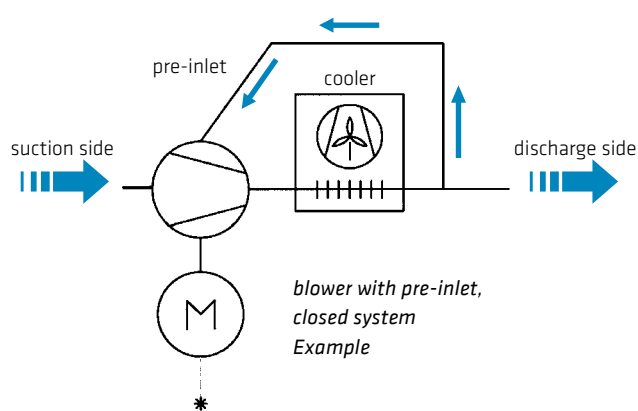
Directly coupled - profile 10.1	up to 12.5 mHV
	up to 900 mbar
profile 13.f7	up to 17.15 mHV
	up to 800 mbar
profile 18.17	up to 20.21 mHV
	up to 600 mbar

## With belt drive

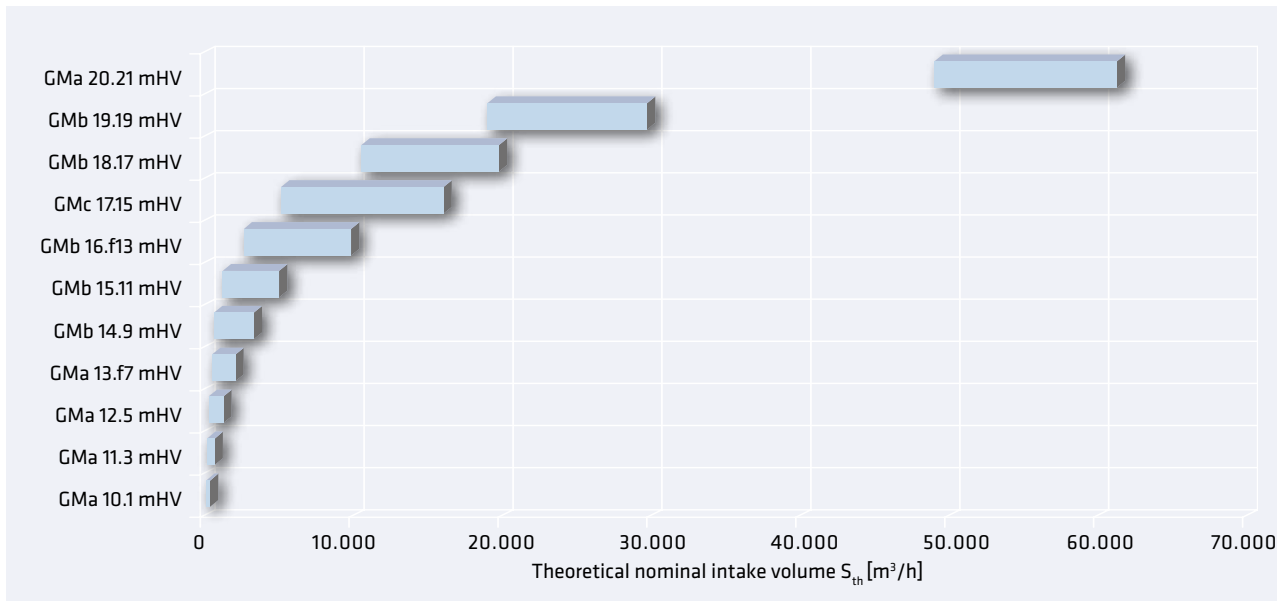
applicable to all sizes up to a load of 250 mbar.

## Special material

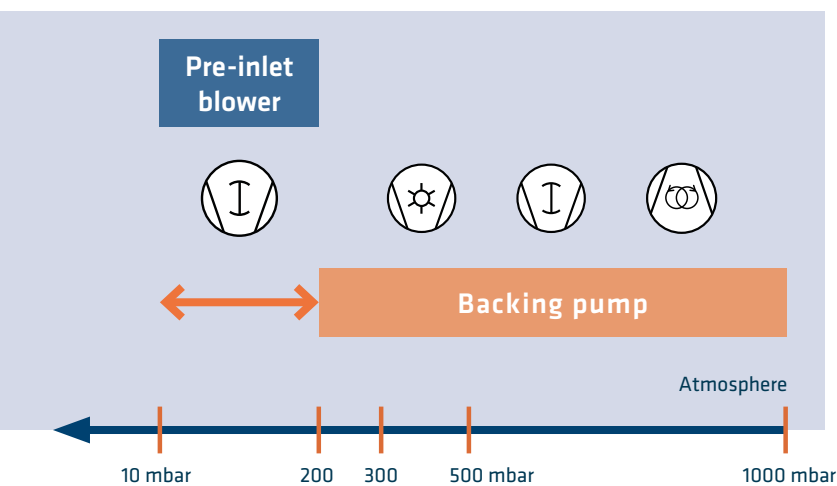
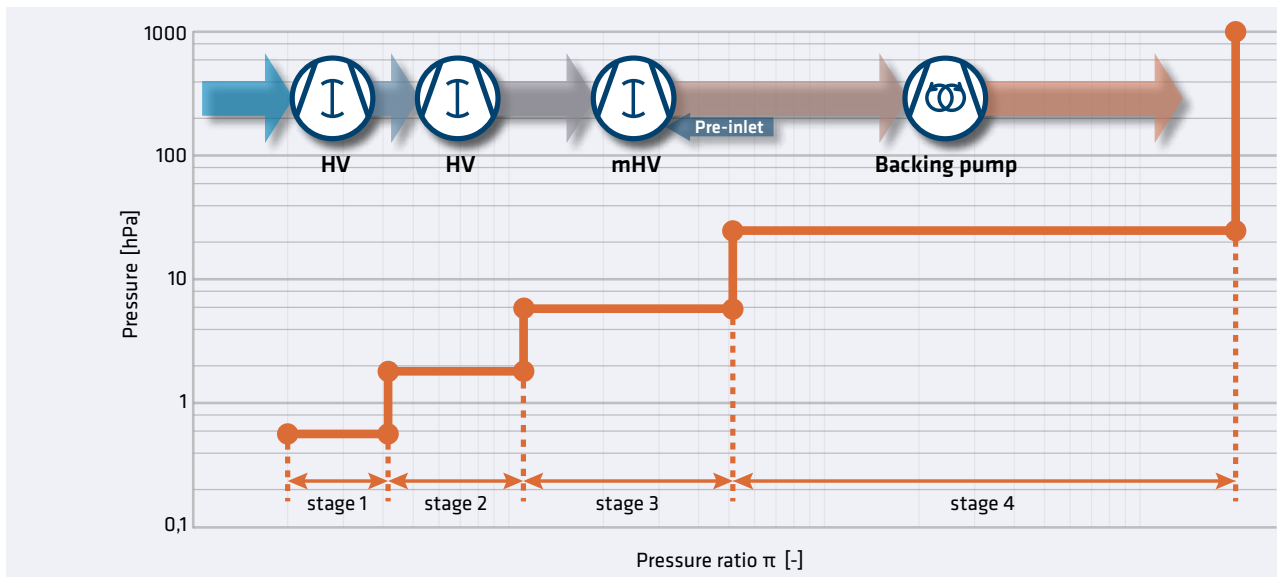
Designs of the housing parts in nodular cast iron EN-GJS-400-15 (GGG 40.3).



**Applications for AERZEN vacuum blowers, type mHV with cooled pre-inlet**



**Example of a four-stage pumping unit within steel degassing: stage 3 with mHV blower**



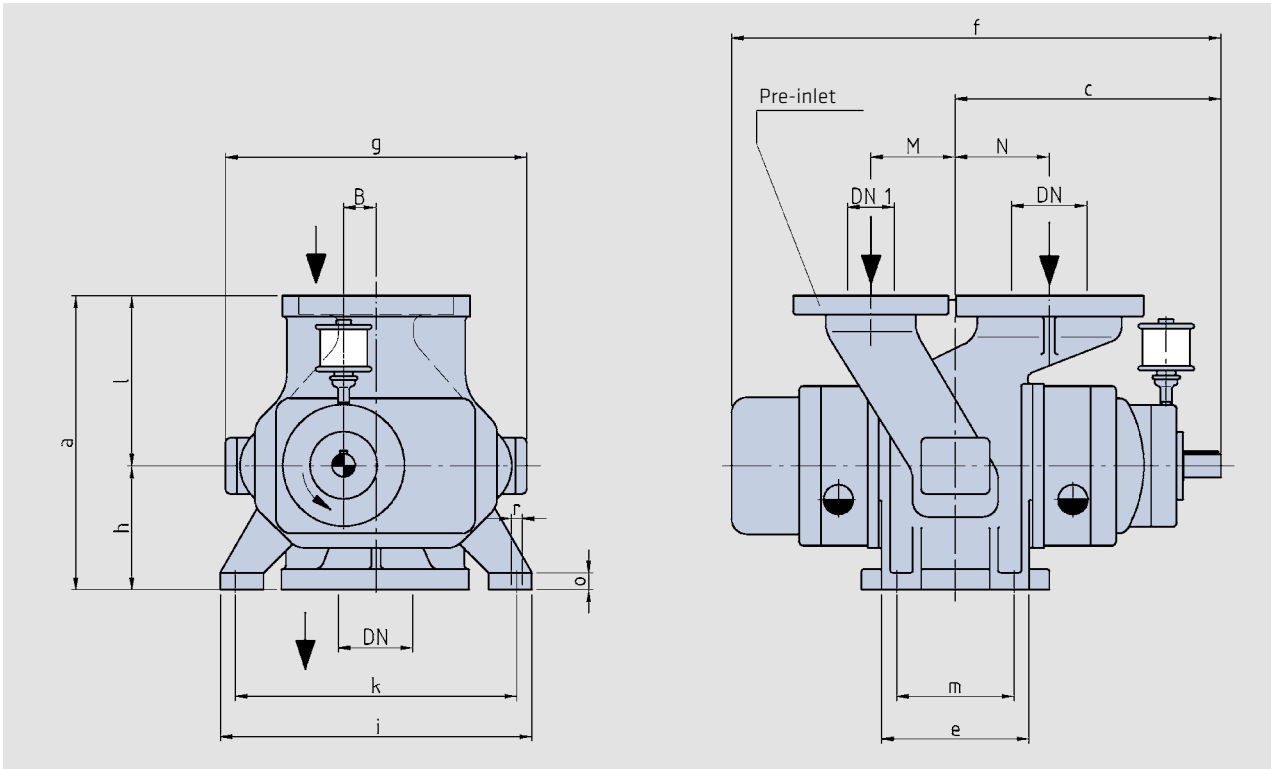
**Pre-inlet blowers are mainly applied:**

- in the rough vacuum and negative pressure as pre-pump or negative pressure stage against atmosphere
- in order to reach high pressure differences within one stage
- for high compression ratios within rough vacuum range of up to  $p_2/p_1 = 5$

**If continuous operation without overheating problem is required:**

- ▶ strong reduction of the compression temperature
- ▶ no mechanical components such as valves and controllers required

## Dimensions and weights, Blower-Stage mHV



Dimensions not binding! Subject to technical modifications!

Model	a	c	e	f	g	h	i	k	l	m	o	r	B	M	N	DN	DN 1	Weight approx. kg
GMa 10.1 mHV	313	283	157	529	321	132	332	300	181	125	22	M12	34	90	100	80	50	95
GMa 11.3 mHV	370	324	200	604	377	160	390	350	210	150	24	M16	42,6	120	100	100	50	160
GMa 12.5 mHV	410	380	260	705	494	180	440	400	230	210	24	M16	53,3	125	115	100	80	225
GMa 13.7 mHV	450	423	330	806	565	200	570	510	250	270	26	M20	67,5	160	130	150	100	310
GMb 14.9 mHV	550	510	350	980	666	250	652	600	300	290	26	M20	84	220	125	200	100	500
GMb 15.11 mHV	680	610	490	1143	778	315	800	720	365	410	28	M20	106	250	200	250	150	720
GMb 16.f13 mHV	760	717	670	1337	1058	355	910	830	405	525	28	M24	135	300	230	300	200	1230
GMc 17.15 mHV	1000	858	855	1640	1233	500	930	810	500	725	30	M30	167,5	290	260	350	200	2180
GMb 18.17 mHV	1120	1005	1120	1955	1440	560	1160	1050	560	900	34	M30	210	480	320	500	300	3700
GMb 19.19 mHV	1420		1270		1954	710	1320	1200	710	1010	36	M30	264	500	400	600	400	6220

Mechanical loading capacity acc. to sheet 4 TG - 3522 and 4 TG - 3523

Nozzle flanges drilled acc. to EN-1092-2

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