

AERZEN

POSITIVE DISPLACEMENT BLOWERS

for conveyance and compression of process gases

Series GR, sizes 12 to 21
intake volume flows from 100 m³/h up to 50.000 m³/h

Series GQ, sizes 17 to 22
intake volume flows from 1.500 m³/h to 100.000 m³/h



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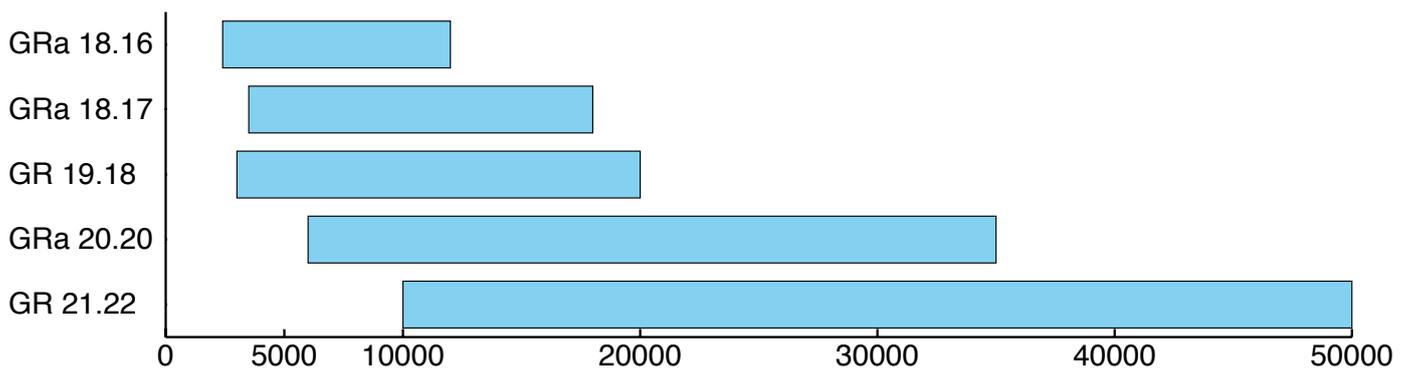
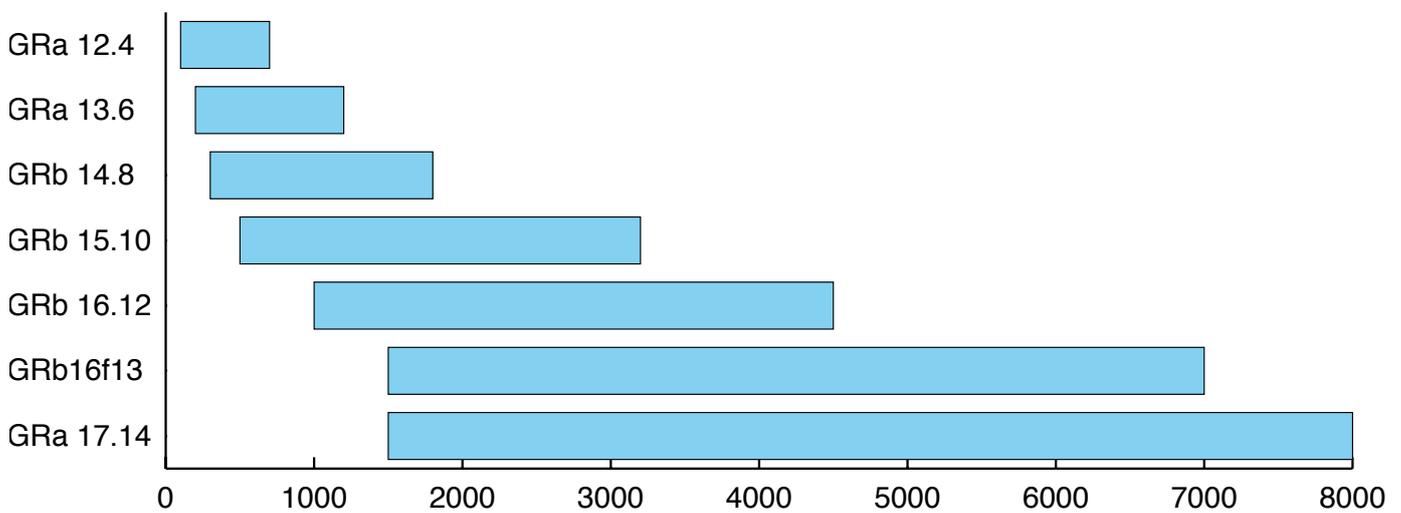
Aerzen Positive Displacement Blowers - Series GR

Working method and range of application

- Positive Displacement principle, i.e. automatic adaptation to possibly changing operating conditions.
- Intake volume flows from 100 to 50000 m³/h
- Pressure difference up to 800 mbar
- Insensitive to impurities in the gas, such as particles of dust, tar and dirt or parts of liquid
- Suitable for continuous liquid injection for gas cooling or for cleaning of the conveying chamber
- Usable for nearly all technical gases and gas mixtures in all industrial ranges
- Ideal use for gases with negative intake temperature
- Optimal use at high intake temperatures up to 110 °C



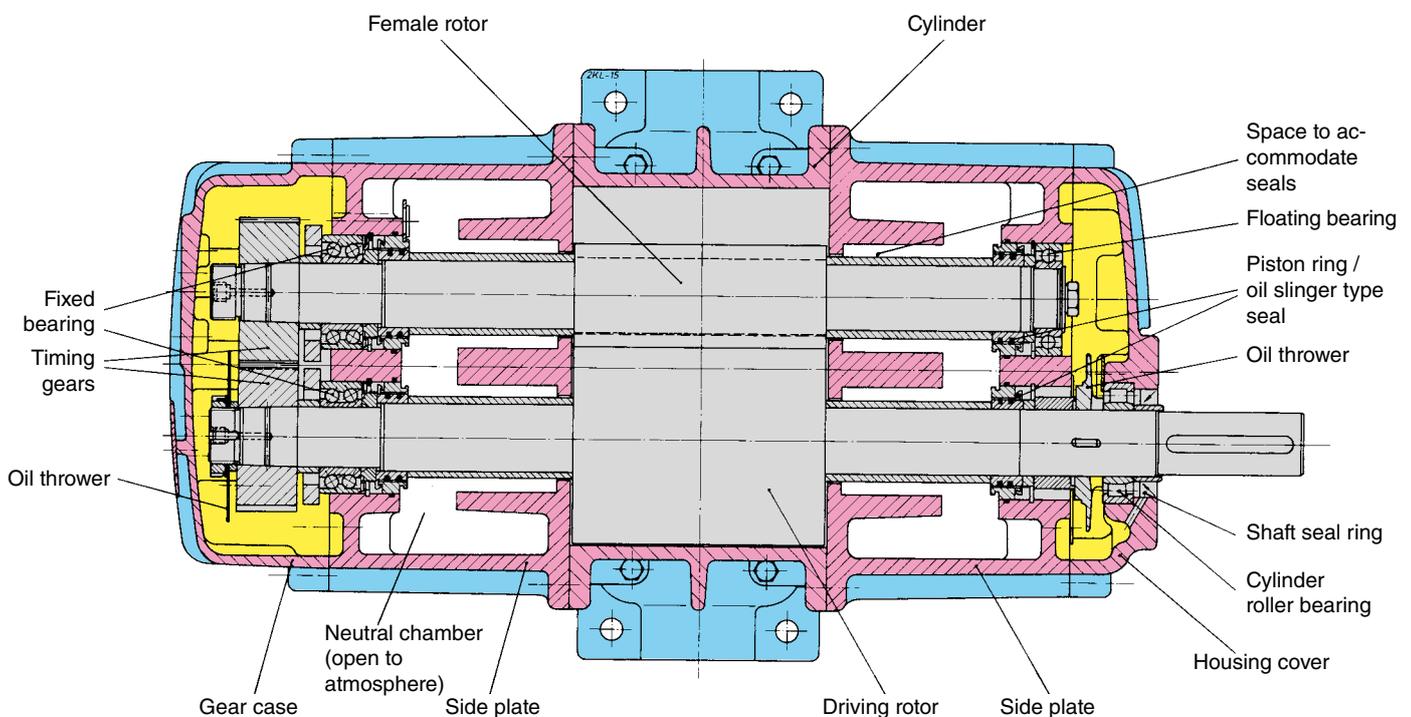
Intake volume flows Q_1 (m³/h)



Aerzen Positive Displacement Blowers - Series GR

Design characteristics

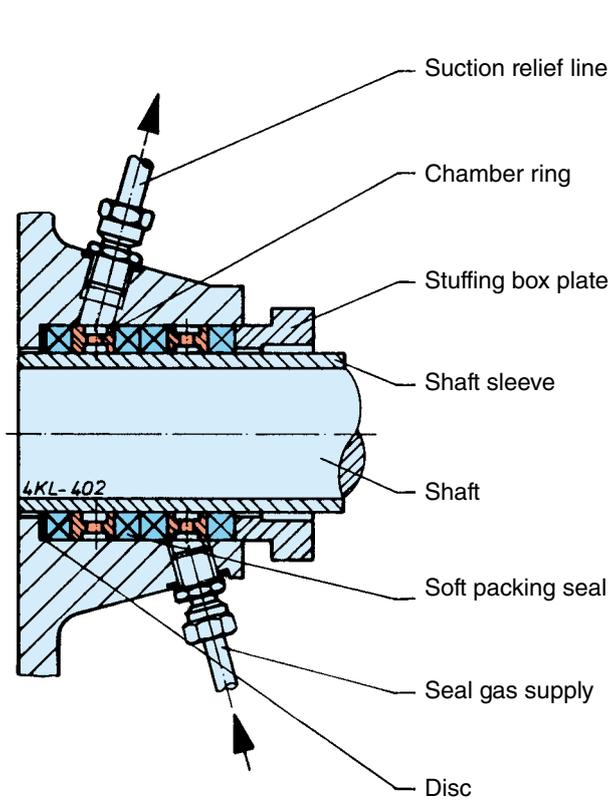
- housing parts made of grey cast iron, designed for PN 2,5
- special design with housing made of nodular cast iron, cast steel or stainless steel, designed up to PN 6
- rotary pistons with shafts made of steel, forged in one piece (only sizes 12 and 13)
- gastightly closed rotary pistons made of grey cast iron (starting from size 14)
- on choice rotary pistons made of nodular cast iron, stainless steel or bronze
- continuous shafts, pressed in, manufactured of one piece (starting from size 14)
- separately arranged conveying chamber, i.e. complete separation between all parts in contact with the gas and the oil- and bearing chambers
- vertical direction of flow
- sufficiently dimensioned roller bearings even at maximum load
- hardened, ground, helically geared timing gears
- fixing of gear wheels by conical press-on taper
- maintenance-free splash lubrication
- possibility of installing various sealing systems, such as:
 - soft packing seals
 - carbon labyrinth seals
 - oil- or water purged mechanical seals
 - gas purged mechanical seals
- special modifications possible depending on conditions of application and on customer's request.



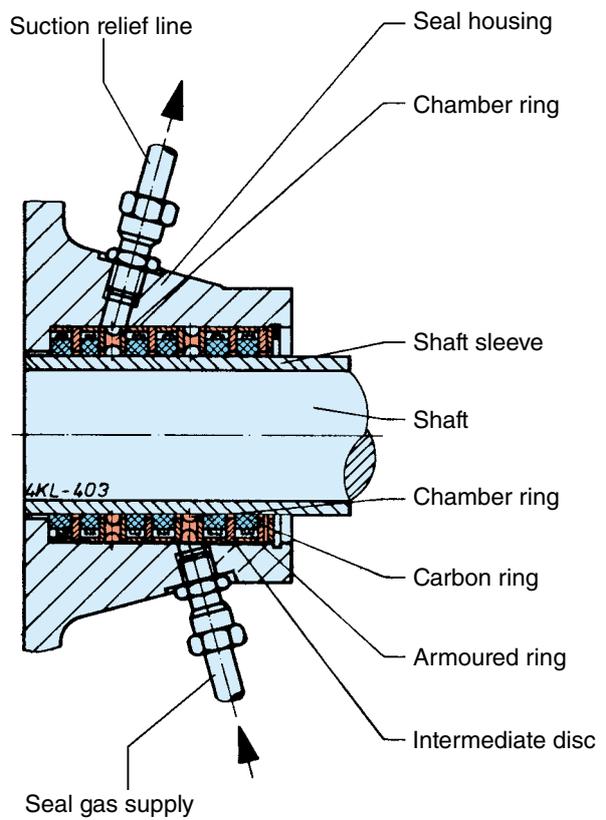
Aerzen Positive Displacement Blowers - Series GR

Possible types of sealing

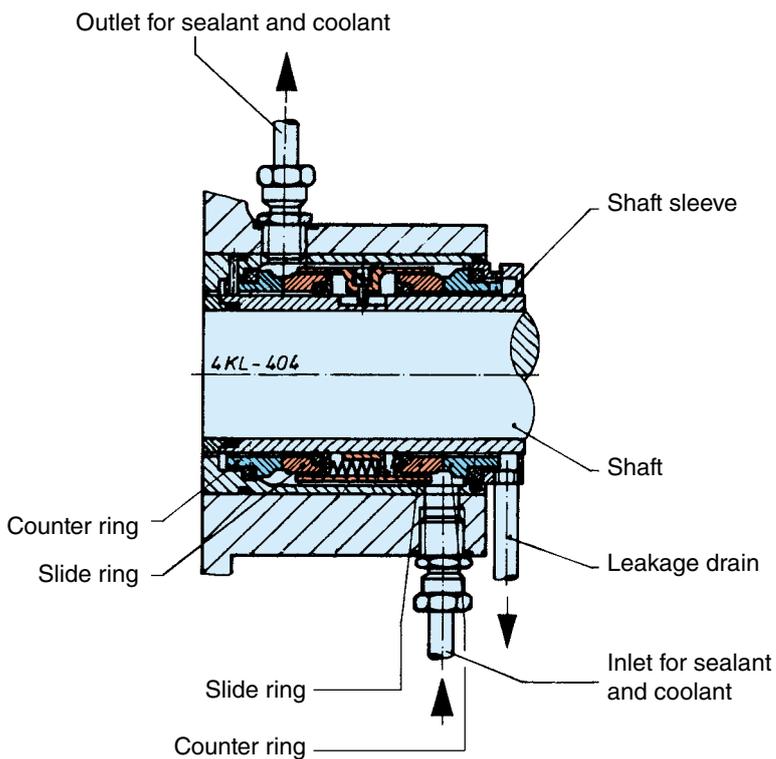
Soft packing seal



Carbon labyrinth seal

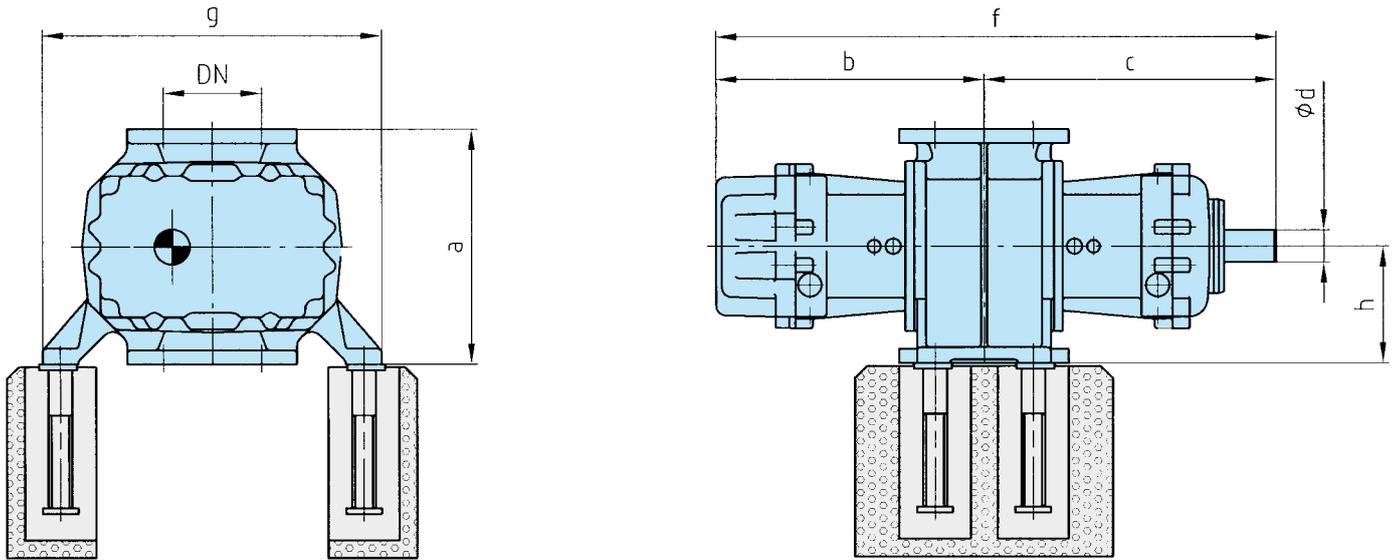


Double acting mechanical seal (oil-, water- or gas-purged)

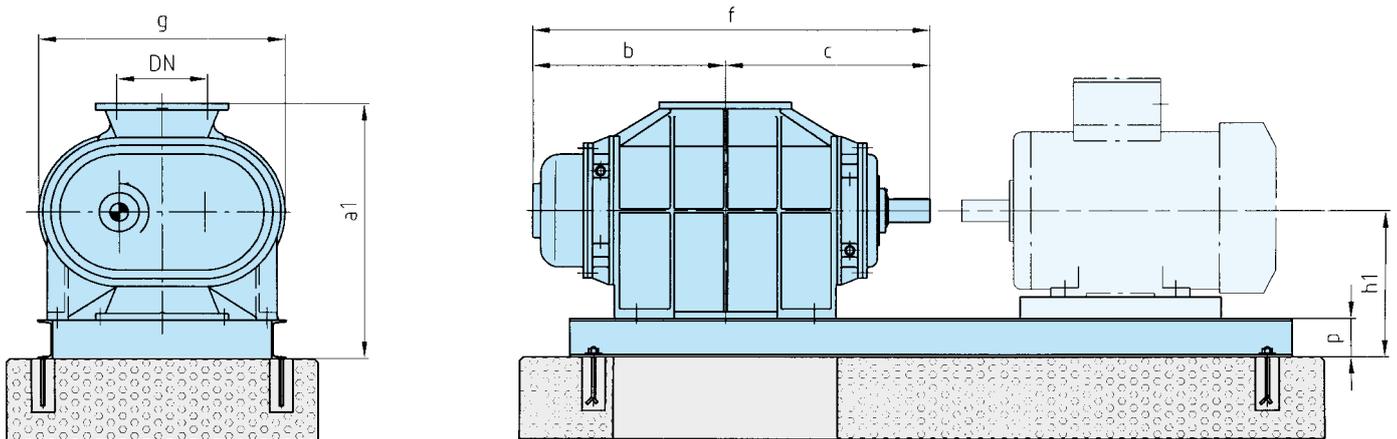


Aerzen Positive Displacement Blowers - Series GR

Sizes 12.4 to 21.22 - arrangement 10



Sizes 18.16 to 21.22 - arrangement 4



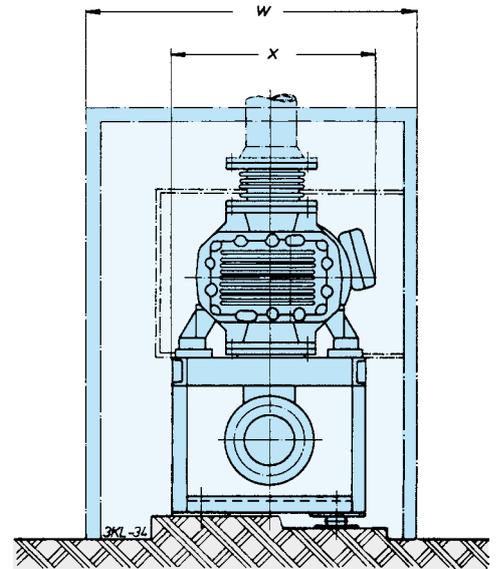
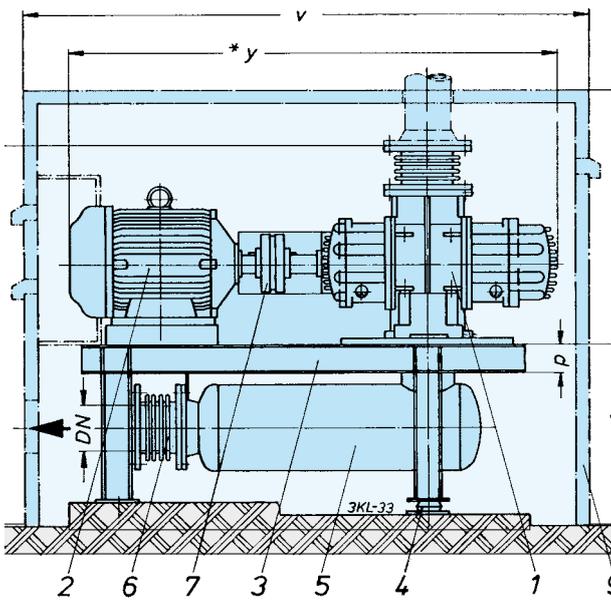
* Weight approx. kg - blower without motor

Size	DN	a	a1	b	c	ød	f	g	h	h1	p	*Weight
GRa 12.4	100	360		395	450	45	845	360	180			200
GRa 13.6	150	400		452	492	55	944	436	200			300
GRb 14.8	150	500		510	608	55	1118	538	250			400
GRb 15.10	200	630		578	652	60	1230	652	315			640
GRb 16.12	250	710		620	726	70	1346	810	355			1000
GRb 16f13	300	710		734	840	70	1574	810	355			1100
GRa 17.14	300	1000		770	940	90	1710	1005	500			1800
GRa 18.16	400	1120	1400	885	933	110	1815	1240	560	840	280	3300
GRa 18.17	500	1120	1400	1080	1130	110	2210	1240	560	840	280	5100
GR 19.18	500	1420	1700	1085	1170	115	2255	1518	710	990	280	5550
GR 20.20	700	1800	2200	1350	1400	145	2750	1879	630	1030	400	9400
GR 21.22	800	2000	2400	1680	1834	180	3514	2190	1000	1400	400	11600

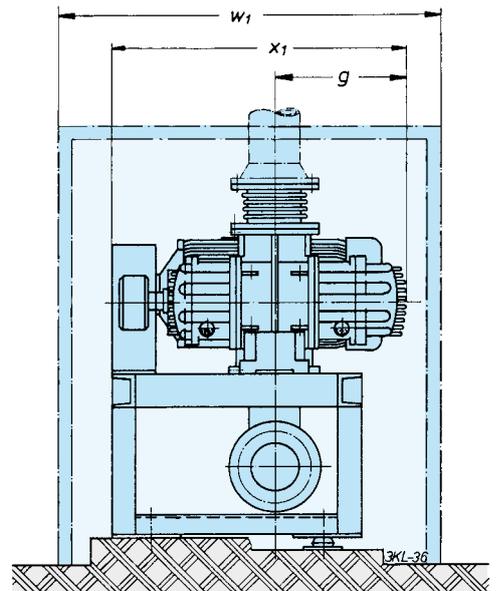
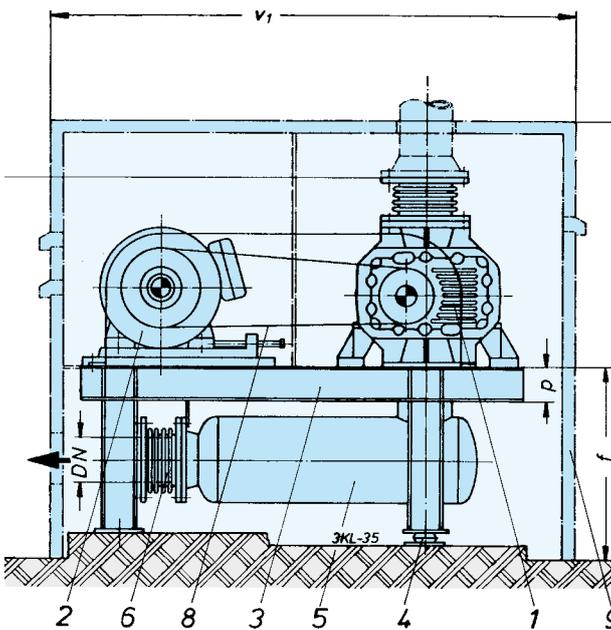
Dimensions without engagement !

Aerzen Positive Displacement Blowers - Series GR

Sizes 12.4 to 17.14 in compact construction, design DA (direct drive)



Sizes 12.4 to 17.14 in compact construction, design FA (overhung drive)



* Dimensions refer to motor size

** Weight approx. kg - unit without motor

Size	DN	*Dimen- sions	a	f	g	h	P	v	v1	w	w1	x	x1	y	** Weight approx. kg
GRa 12.4	100	180 L	1064	510	395	1300	80	1900	1700	1100	1400	605	885	1540	360
GRa 13.6	150	180 L	1185	580	452	1300	100	2000	1800	1300	1500	685	1002	1640	520
GRb 14.8	150	225 S	1305	580	510	1550	120	2300	2000	1300	1650	810	1145	1865	700
GRb 15.10	200	280 S	1642	775	578	1850	140	2700	2400	1400	1750	1010	1233	2230	1250
GRb 16.12	250	315 M	1810	865	620	2100	160	3000	2800	1700	1600	1160	1100	2550	1900
GRb 16f13	300	355 L	2032	1125	734	2280	160	3550	3000	1800	2200	1330	1684	3095	2100
GRa 17.14	300	355 L	2412	1185	770	2670	200	3640	2900	1950	2300	1467	1810	3103	3200

Dimensions without engagement !

Aerzen Positive Displacement Blowers - Series GR



Aerzen Positive Displacement Blowers - Series GQ

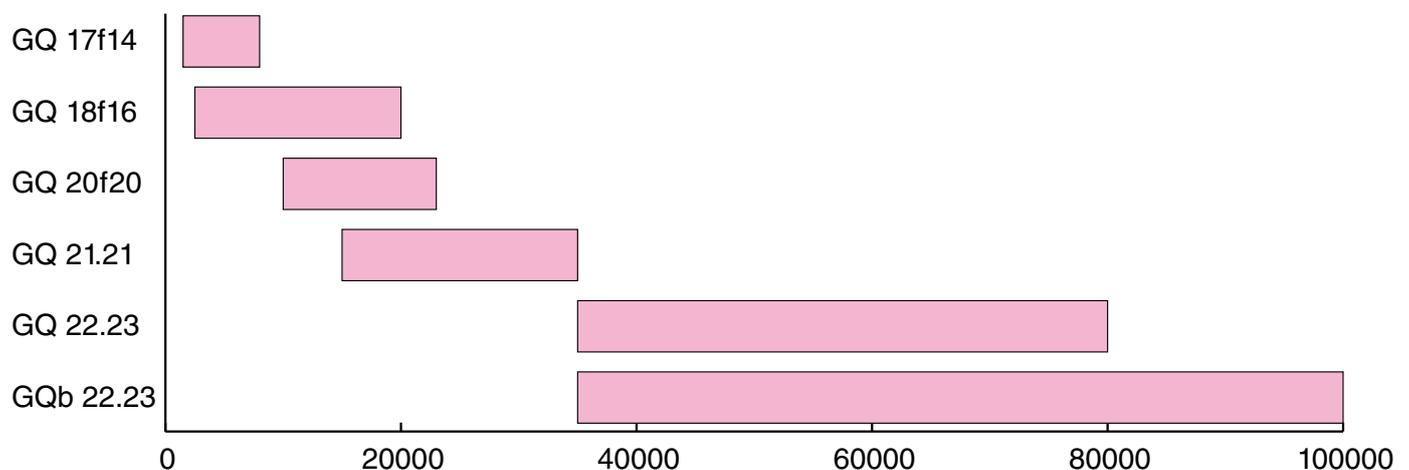
Working method and range of application

- Positive Displacement principle, i.e. automatic adaptation to possibly changing operating conditions.
- Intake volume flows from 15.000 to 100.000 m³/h
- Pressure difference :
 GQ 17f14, GQ 18f16 : 1000 mbar
 GQ 22.23, GQb 22.23 : 1200 mbar
 GQ 20f20, GQ 21.21 : 1500 mbar
- Insensitive to impurities in the gas, such as particles of dust and dirt or parts of liquid
- Suitable for continuous water injection for gas cooling or for cleaning of the conveying chamber
- Ideal use in steel works for compression of process-, cooling and purge gas
- Frequent use as double-stage units for differential pressures up to 2,4 bar

Design characteristics

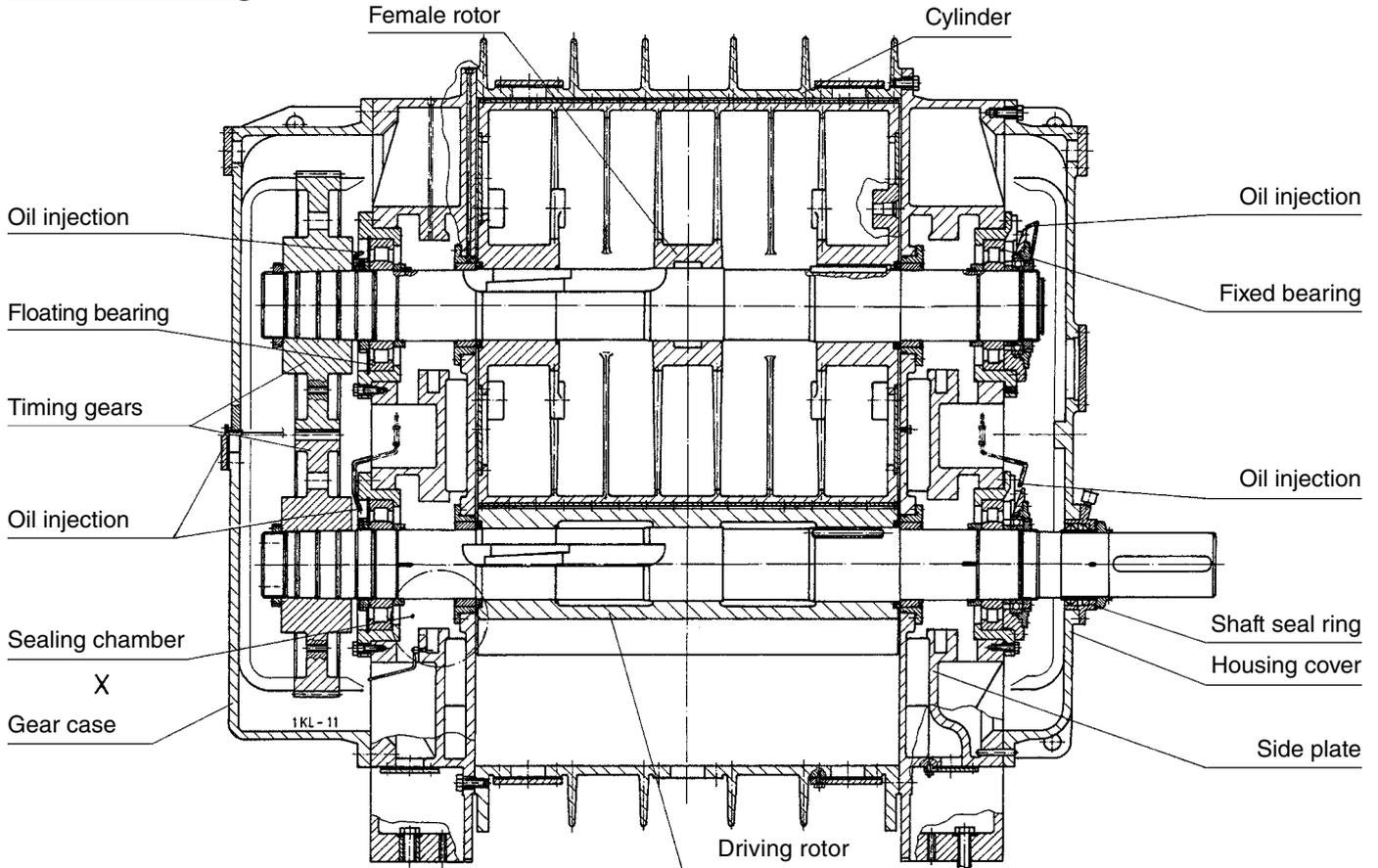
- housing parts made of nodular cast iron, designed for PN 2,5 with cast-on AERSIL-chamber for reduction of sound and pulsations
- special design with housing made of nodular cast iron, designed for PN 6 (only GQ 20f20 xz and GQ 21.21 xz)
- gastightly closed rotary pistons made of grey cast iron, with stainless steel wearing ledges
- on choice rotary pistons made of wear resistant stainless steel
- continuous shafts manufactured of one piece
- fixing pistons-shafts by tangential keys
- horizontal direction of flow, therefore simple installation and piping
- sufficiently dimensioned roller bearings even at extreme load
- hardened, ground, helically geared timing gears
- fixing of gear wheels by conical press-on taper
- optimal separation between conveying chamber and both oil- and bearing chambers
- special conveying chamber sealing by single-acting mechanical seal with forced feed oil trap in combination with labyrinth seals and oil slingers
- flushing device prepared as standard in the sealing range
- forced feed lubrication by separate oil supply unit

Intake volume flows Q_1 (m³/h)

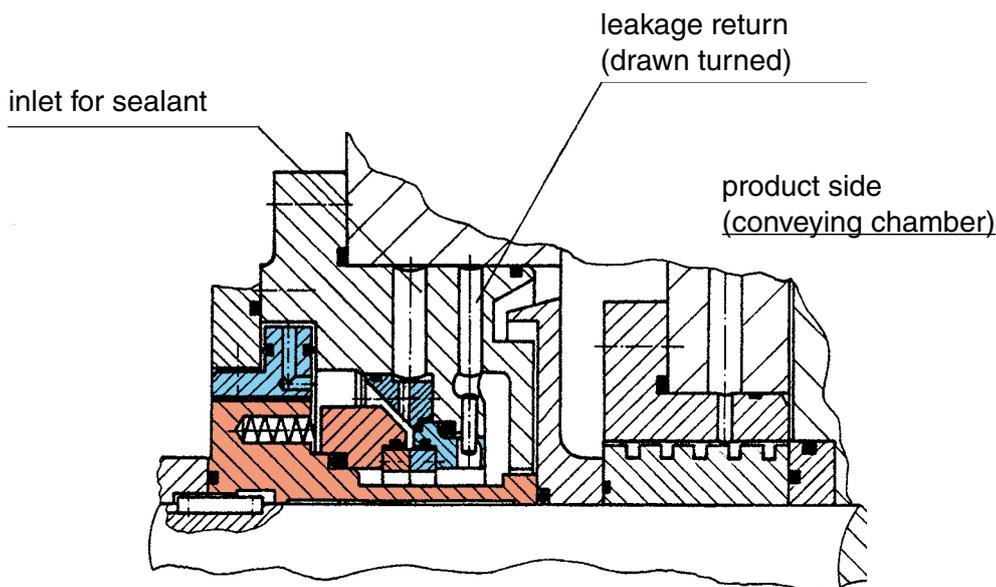


Aerzen Positive Displacement Blowers - Series GQ

Sectional drawing

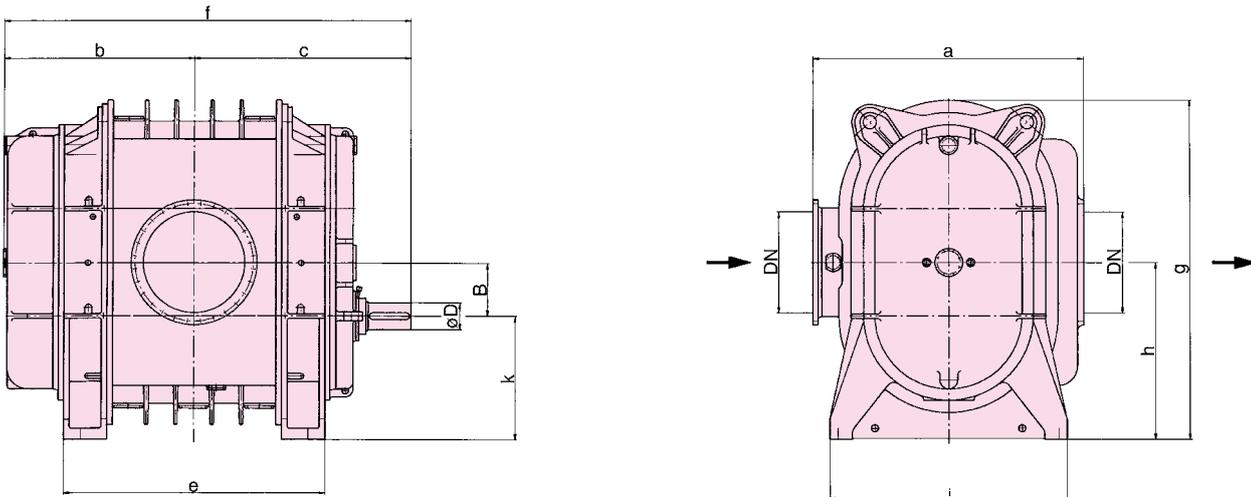


Sealing chamber (detail „X“)



Aerzen Positive Displacement Blowers - Series GQ

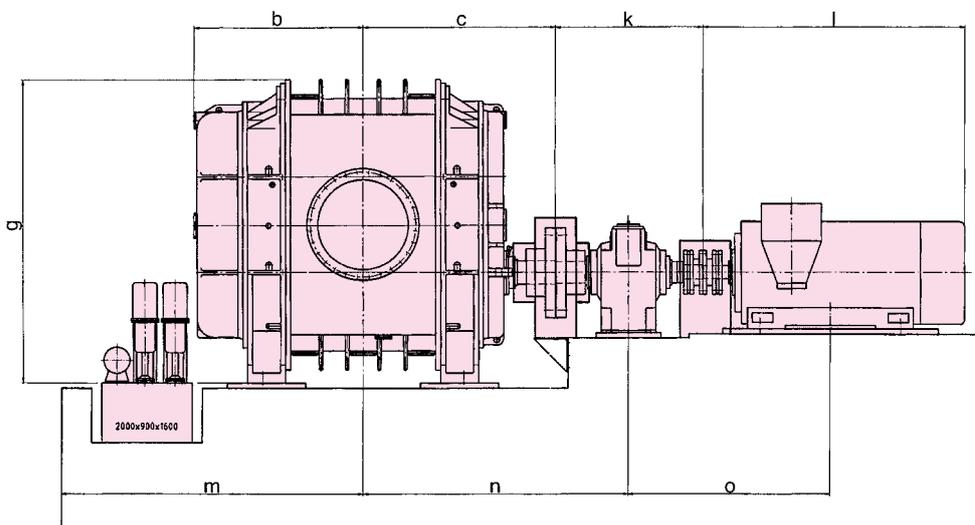
Sizes 17f14 to 22.23 - arrangement 10



Type of construction	DN	a	b	c	ød	e	f	g	h	i	k	B	Weight approx. kg
GQ 17f14 xz	300	1000	993	805	90	640	1798	1070	567,5	920	400	167,5	2000
GQ 18f16 xz	400	1120	1042	954	110	740	1996	1380	760	1010	550	210	3500
GQ 20f20 xz	700	1800	1160	1360	160	1600	2520	2020	1300	1500	730	320	16000
GQ 21.21 xz	700	2000	1390	1600	180	1820	2920	2500	1335	1800	945	390	25000
GQ 22.23 xz	900	2400	1682,5	1914,5	240	2300	3597	3030	1580	2100	1100	479,2	27000
GQb 22.23 xz	1200	2400	1682,5	1914,5	240	2300	3597	3030	1580	2100	1100	479,2	28000

Dimensions without engagement !

Sizes 17f14 to 22.23 - arrangement 6



Type of construction	b	c	g	k	l	m	n	o	Foundation approx.	
									Length	Width
GQ 17f14 xz	993	805	1070	940	1800	2300	1272	1370	6000	2300
GQ 18f16 xz	1042	954	1380	1020	1900	2400	1465	1460	6500	2300
GQ 20f20 xz	1160	1360	2020	1200	2000	2690	2030	1840	8100	3000
GQ 21.21 xz	1390	1530	2450	1220	2200	2700	2140	1710	7900	3500
GQ 22.23 xz	1682,5	1914,5	3030	1465	2600	3000	2642	2010	9200	3800
GQb 22.23 xz	1682,5	1914,5	3030	1465	2600	3000	2642	2010	9200	3800

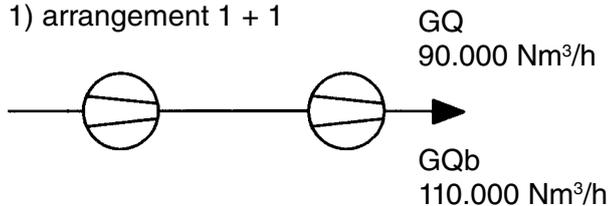
Dimensions without engagement !

Aerzen Positive Displacement Blowers - Series GQ

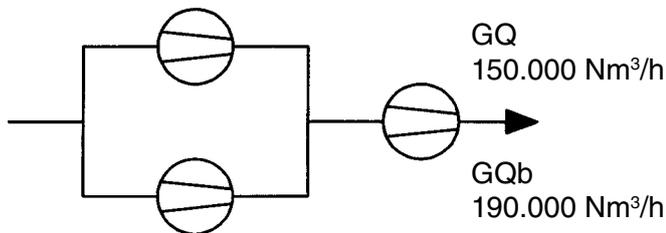
Cases of application of GQ 22.23 or GQb 22.23 - blowers in direct reduction plants

Double-stage compression
of process gas with $p_1 \approx 1,3 \text{ bar abs}$
 $p_2 \approx 3,3 \text{ bar abs}$
 $t_1 \approx 50 \text{ }^\circ\text{C}$

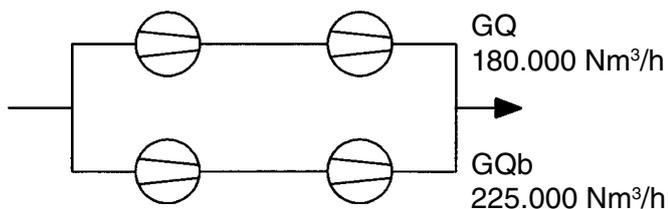
1) arrangement 1 + 1



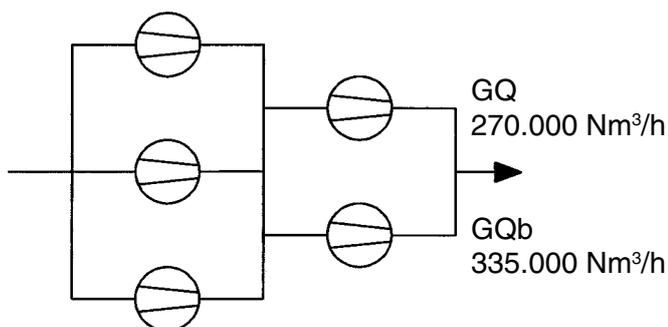
2) arrangement 2 + 1



3) arrangement 2 + 2



4) arrangement 3 + 2



Accessories available

- base frames, base plates
- flexible machinery mountings, anchor bolts, anchor bars
- flexible couplings
- coupling guards
- compensators, sliding sleeves
- starting strainers
- injection devices
- pipe connections
- non-return flaps
- silencers
- acoustic hoods
- driving motors
- gearboxes
- heat exchangers
- washers
- separators
- safety relief valves
- contact instruments
- completely wired instrument panels
- completely tubed oil supply units

All the accessories are adapted to the corresponding cases of application and are available in the most various designs.

References

- 1.) Aerzen Positive Displacement Blowers series GR are in operation in all branches of industry worldwide. Reference lists according to the cases of application can be sent on request.
- 2.) Aerzen Positive Displacement Blowers series GQ have been working successfully in steel works for decades in the following countries:

- Russia
- Saudi Arabia
- Iran
- Libya
- Malaysia
- Venezuela
- Argentina
- India
- South Korea
- South Africa

Aerzen Positive Displacement Blowers - Series GQ



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