

THE GAS DECIDES THE MACHINE

Ammonia · natural gas · LPG · nitrogen · oxygen ·
biogas — 0.5 to 210 bar g,
10 to 3,500 Nm³/h, 96 models

**GREEN AIR
COMPRESSOR**



WHY THERE IS NO CATALOGUE

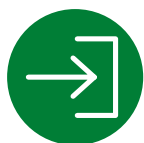
An air compressor can be chosen from a page because air is the same everywhere. A gas compressor cannot, because the gas decides what the machine is allowed to be made of. Ammonia destroys copper. Wet biogas forms acid and eats carbon steel. Oxygen lowers the ignition point of almost everything, so a trace of oil that is harmless in an air machine becomes a source of ignition. Hydrogen and light hydrocarbons escape through joints that hold air perfectly well. The tables in this document are real and they are where the conversation starts. They are not where it finishes.

Gas	What the gas does to the machine	What that forces	Sealing	Typical duty
● Ammonia	Attacks copper and its alloys	Steel throughout, no copper anywhere	Standard, well made	Refrigeration, cold store, process
● Natural gas	Leaks, and carries liquid	Separation upstream, staging	Dry gas or double seal	Wellhead, gathering, fuel gas
● LPG	Vapour is product, not waste	Vapour recovery, zone-rated drive	Double seal, buffered	Transfer, tanker stripping
● Nitrogen	Costs money to make	Nothing wasted at the seal	Buffered, on expensive gas	Blanketing, purging, cylinder filling
● Oxygen	Lowers the ignition point of everything	No lubricant in the gas path at all	Oil free by construction	Cylinder filling, medical plant feed
● Biogas	Forms acid with water present	Stainless wetted parts, drain every low point	Sour service elastomers	Digester gas, CHP feed, upgrading



The analysis comes first

Not one sample. The range the plant actually sees across a year, because a machine chosen on one analysis can sit well off its curve on another.



The inlet matters as much as the outlet

It sets the compression ratio, the number of stages and the discharge temperature. It is in every table in this document for that reason.



Leakage is a safety case, not a cost

On LPG, hydrogen and sour gas the seal arrangement is chosen from what a leak would do, not from what it would cost.

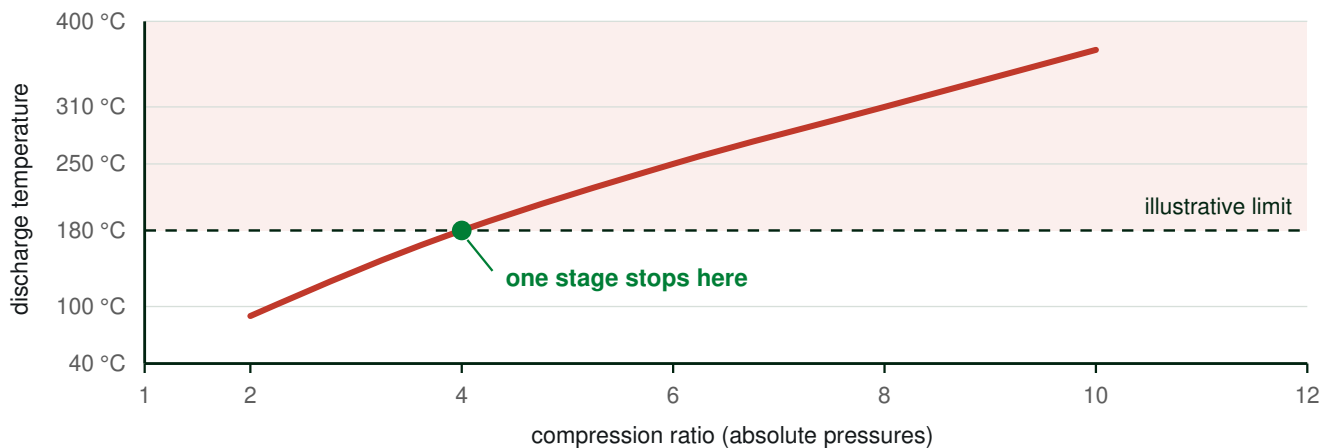


Area classification is yours, not ours

Tell us the zone and we specify the driver, the instruments and the protection to suit it. It is not a property of the machine.

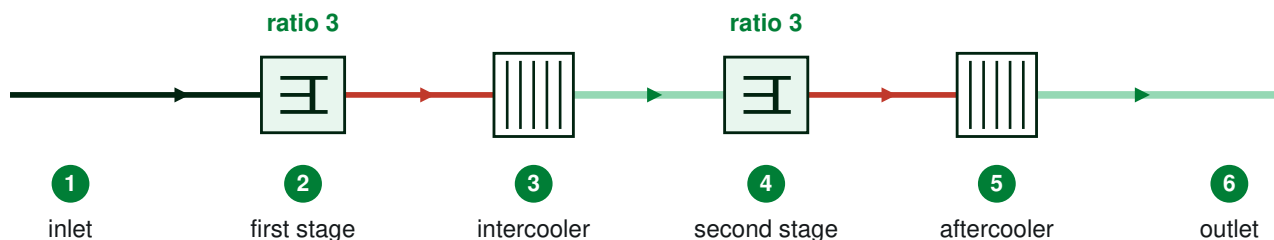
WHY STAGING

The ratio between inlet and outlet is what decides how many stages a machine needs, and the reason is temperature, not strength.



Illustrative curve; temperature limits depend on the gas and compressor design.

total ratio 9, and neither stage goes above the line



A 1 bar g inlet and a 45 bar g outlet is a ratio of about twenty-three, using absolute pressures. No single stage does that. Every code in this document that spans a wide inlet-to-outlet gap is a staged machine, and the cooling between the stages is most of why it works.

Ammonia and copper

Ammonia attacks copper and its alloys. The circuit has to be steel throughout, including anything reused from an earlier plant. This is the single commonest way an ammonia installation is got wrong.



AMMONIA AND BIOGAS

Ammonia. Refrigeration and process duty, 10 to 210 bar g. An efficient refrigerant with almost no cost to replace, and a long record of safe use at scale — provided the machinery room has the ventilation, detection and isolation that make it safe. That is a design cost, not a running cost, and it is not optional.

Biogas. Wet, corrosive and variable, all at once. Bulk hydrogen sulphide and water come out before the compressor, the wetted parts are stainless, and every low point drains where the condensate forms rather than where it collects.

Ammonia — GA-AM

Model	Motor		Capacity		Pressure			Weight		Dimensions
	kW	hp	Nm³/h	scfm	Inlet bar g	Outlet bar g	Outlet psi g	kg	lb	L × W × H mm
GA-AM-0.2/10-25	5.5	7	100	62	10	25	363	—	—	1000 × 580 × 870
GA-AM-0.2/25-40	7.5	10	260	162	25	40	580	—	—	1000 × 580 × 870
GA-AM-0.3/20-30	7.5	10	300	187	20	30	435	—	—	1000 × 580 × 870
GA-AM-0.4/10-25	11	15	220	137	10	25	363	—	—	1000 × 580 × 870
GA-AM-0.4/20-30	11	15	420	261	20	30	435	—	—	1000 × 580 × 870
GA-AM-0.4/25-40	15	20	510	317	25	40	580	—	—	1000 × 580 × 870
GA-AM-0.5/20-30	15	20	540	336	20	30	435	—	—	1000 × 580 × 870
GA-AM-0.5/25-40	18.5	25	660	411	25	40	580	—	—	1000 × 580 × 870
GA-AM-0.6/10-25	15	20	330	205	10	25	363	—	—	1000 × 580 × 870
GA-AM-0.6/16-24	11	15	550	342	16	24	348	—	—	1000 × 580 × 870
GA-AM-0.6/20-30	15	20	630	392	20	30	435	—	—	1000 × 580 × 870
GA-AM-0.8/10-16	11	15	450	280	10	16	232	—	—	1100 × 740 × 960
GA-AM-0.8/16-24	15	20	750	467	16	24	348	—	—	1000 × 580 × 870
GA-AM-1.0/16-24	18.5	25	920	572	16	24	348	—	—	1000 × 580 × 870
GA-AM-1.1/10-16	15	20	600	373	10	16	232	—	—	1100 × 740 × 960
GA-AM-1.35/10-16	18.5	25	750	467	10	16	232	—	—	1100 × 740 × 960
GA-AM-1.5/16-24	30	40	1380	858	16	24	348	—	—	1000 × 580 × 870
GA-AM-1.6/10-16	22	30	950	591	10	16	232	—	—	1400 × 900 × 1180
GA-AM-1.6/20-30	37	50	1710	1064	20	30	435	—	—	1400 × 900 × 1180
GA-AM-2.0/10-16	30	40	1200	746	10	16	232	—	—	1400 × 900 × 1180
GA-AM-2.0/16-24	37	50	1500	933	16	24	348	—	—	1000 × 580 × 870
GA-AM-2.5/10-16	37	50	1500	933	10	16	232	—	—	1400 × 900 × 1180
GA-AM-2.5/16-24	45	60	1880	1169	16	24	348	—	—	1000 × 580 × 870
GA-AM-3.0/10-16	45	60	1800	1120	10	16	232	—	—	1400 × 900 × 1180
GA-AM-3.0/16-24	55	74	2250	1400	16	24	348	—	—	1000 × 580 × 870
GA-AM-3.5/16-24	55	74	3000	1866	16	24	348	—	—	1600 × 900 × 1200
GA-AM-4.0/16-24	75	101	3500	2177	16	24	348	—	—	1600 × 900 × 1200

AMMONIA AND BIOGAS

Biogas — GA-BGZ

Model	Motor		Capacity		Pressure			Weight		Dimensions L × W × H mm
	kW	hp	Nm³/h	scfm	Inlet bar g	Outlet bar g	Outlet psi g	kg	lb	
GA-BGZ-0.85/0.16-16	—	—	50	31	0.16	16	232	—	—	—
GA-BGZ-0.8/2-16	—	—	120	75	2	16	232	—	—	—
GA-BGV-5.5/4.5	—	—	280	174	0	4.5	65	—	—	—
GA-BGV-3.5/1-45	—	—	350	218	1	45	653	—	—	—
GA-BGV-5/1-45	—	—	500	311	1	45	653	—	—	—
GA-BGV-7/1-45	—	—	700	435	1	45	653	—	—	—

Inlet pressure is the condition each machine is rated at; the compression ratio between inlet and outlet is what sets the staging. Where a cell is blank, that figure is given with the quotation rather than published, because these machines are built to the duty rather than picked from stock. Imperial figures are converted from the metric values and rounded; scfm is at 60 °F and 14.696 psia.



NATURAL GAS AND HYDROCARBON

Natural gas. Wellhead, gathering, boosting and fuel gas. A screw machine tolerates liquid carry-over far better than a reciprocating one, so where the gas is wet the separation upstream is specified as part of the package rather than left to the site. On a remote wellhead a gas engine running on the gas being compressed is the usual answer to having no grid.

LPG and hydrocarbon. A pump moves liquid; it cannot recover vapour or strip a tanker down to its heel, and both of those are product already paid for. Transfer rates are supplied with the quotation.

Natural gas — GA-NGZ

Model	Motor		Capacity		Pressure			Weight		Dimensions
	kW	hp	Nm³/h	scfm	Inlet bar g	Outlet bar g	Outlet psi g	kg	lb	L × W × H mm
GA-NGZ-0.2/3	—	—	10	6	0	3	44	—	—	—
GA-NGZ-0.2/1-18	—	—	20	12	1	18	261	—	—	—
GA-NGZ-0.65/0.12-0.5	—	—	35	22	0.12	0.5	7	—	—	—
GA-NGZ-0.4/1-18	—	—	40	25	1	18	261	—	—	—
GA-NGZ-0.85/0.8-3	—	—	80	50	0.80	3	44	—	—	—
GA-NGZ-0.6/2-25	—	—	90	56	2	25	363	—	—	—
GA-NGZ-1.0/1-18	—	—	100	62	1	18	261	—	—	—
GA-NGZ-0.8/2-210	—	—	125	78	2	210	3046	—	—	—
GA-NGZ-1.2/1.5-22	—	—	150	93	1.50	22	319	—	—	—
GA-NGZ-0.55/6-120	—	—	200	124	6	120	1740	—	—	—
GA-NGZ-0.3/18-19	—	—	300	187	18	19	276	—	—	—
GA-NGZ-1.3/4-25	—	—	340	211	4	25	363	—	—	—
GA-NGZ-0.6/(10-16)-40	—	—	350	218	16	40	580	—	—	—
GA-NGV-2.5/2-40	—	—	390	243	2	40	580	—	—	—
GA-NGV-4/1-20	—	—	415	258	1	20	290	—	—	—
GA-NGV-7/0.3-45	—	—	470	292	0.30	45	653	—	—	—
GA-NGZ-0.25/40-60	—	—	520	323	40	60	870	—	—	—
GA-NGV-3.8/2-42	—	—	600	373	2	42	609	—	—	—
GA-NGV-4.2/3-35	—	—	880	547	3	35	508	—	—	—
GA-NGD-10/1-45	—	—	1050	653	1	45	653	—	—	—
GA-NGV-10/2-6.5	—	—	1500	933	2	6.5	94	—	—	—
GA-NGZ-1.9/14.5-20	—	—	1540	958	14.50	20	290	—	—	—
GA-NGZ-2.5/14.5-20	—	—	2000	1244	14.50	20	290	—	—	—
GA-NGV-14/3-4	—	—	2900	1804	3	4	58	—	—	—
GA-NGV-6/10-16	—	—	3400	2115	10	16	232	—	—	—

NATURAL GAS AND HYDROCARBON

LPG and hydrocarbon — GA-LP

Model	Motor		Capacity		Pressure			Weight		Dimensions
	kW	hp	Nm³/h	scfm	Inlet bar g	Outlet bar g	Outlet psi g	kg	lb	L × W × H mm
GA-LP-0.25/10-16	4	5	—	—	10	16	232	—	—	1000 × 710 × 865
GA-LP-0.4/10-16	5.5	7	—	—	10	16	232	—	—	1000 × 710 × 865
GA-LP-0.5/10-16	7.5	10	—	—	10	16	232	—	—	1000 × 710 × 865
GA-LP-0.6/10-16	7.5	10	—	—	10	16	232	—	—	1000 × 710 × 865
GA-LP-0.75/10-16	11	15	—	—	10	16	232	—	—	1450 × 800 × 1300
GA-LP-0.8/10-16	11	15	—	—	10	16	232	—	—	1000 × 710 × 865
GA-LP-1.1/10-16	15	20	—	—	10	16	232	—	—	1000 × 710 × 865
GA-LP-1.35/10-16	18.5	25	—	—	10	16	232	—	—	1000 × 710 × 865
GA-LP-1.5/10-16	22	30	—	—	10	16	232	—	—	1860 × 1680 × 930
GA-LP-1.6/10-16	22	30	—	—	10	16	232	—	—	1400 × 900 × 1180
GA-LP-2.0/10-16	30	40	—	—	10	16	232	—	—	1400 × 900 × 1180
GA-LP-2.5/10-16	37	50	—	—	10	16	232	—	—	1400 × 900 × 1180
GA-LP-3.0/10-16	45	60	—	—	10	16	232	—	—	1400 × 900 × 1180
GA-LP-4.0/10-16	55	74	—	—	10	16	232	—	—	1400 × 900 × 1180
GA-LP-5.0/10-16	75	101	—	—	10	16	232	—	—	2000 × 1700 × 1400
GA-LP-6.0/10-16	90	121	—	—	10	16	232	—	—	2000 × 1700 × 1400
GA-LP-8.0/10-16	110	148	—	—	10	16	232	—	—	2000 × 1700 × 1400

The LPG table gives power and pressure rather than volumetric flow, because these machines are specified by transfer rate. Transfer rates are supplied with the quotation. Imperial figures are converted and rounded.

NITROGEN AND OXYGEN

Nitrogen. Boosting and circulating for blanketing, purging and process feed, usually paired with an on-site generator. Every gramme that escapes at a seal is gas you paid to separate out of the atmosphere, which makes the seal arrangement a commercial decision rather than a detail.

Oxygen. Oil free by construction, not by filtration. There is no lubricant in the gas path at any point, because oxygen lowers the ignition threshold of almost everything and a trace of hydrocarbon that would be invisible in an air machine becomes a source of ignition. An air compressor cannot be converted for this duty and anyone offering to do it should be declined.

Nitrogen — GA-NZ

Model	Motor		Capacity		Pressure			Weight		Dimensions
	kW	hp	Nm³/h	scfm	Inlet bar g	Outlet bar g	Outlet psi g	kg	lb	L × W × H mm
GA-NZ-0.6/2-25	30	40	90	56	2	25	363	—	—	—
GA-NZ-1.5/1-12	22	30	180	112	1	12	174	—	—	—
GA-NZ-1.4/2-40	37	50	250	156	2	40	580	—	—	—
GA-NZ-1.3/4-25	37	50	340	211	4	25	363	—	—	—
GA-NV-7.2/2.5-6	45	60	1200	746	2.50	6	87	—	—	—
GA-NV-15/0.5-3	75	101	1200	746	0.50	3	44	—	—	—
GA-NV-9.7/1-10	110	148	1100	684	1	10	145	—	—	—
GA-NV-7.2/1-22	132	177	800	498	1	22	319	—	—	—
GA-ND-1.2/2-150	45	60	400	249	2	150	2176	—	—	—
GA-ND-0.5/20-160	75	101	600	373	20	160	2321	—	—	—
GA-ND-3.8/10-45	185	248	2300	1431	10	45	653	—	—	—
GA-ND-11/4-20	250	335	3000	1866	4	20	290	—	—	—

Oxygen — GA-OX

Model	Motor		Capacity		Pressure			Weight		Dimensions
	kW	hp	Nm³/h	scfm	Inlet bar g	Outlet bar g	Outlet psi g	kg	lb	L × W × H mm
GA-OX-30/4-150	11	15	30	19	4	150	2176	750	1653	1550 × 910 × 1355
GA-OX-40/4-150	11	15	40	25	4	150	2176	780	1720	1550 × 910 × 1355
GA-OX-50/4-150	15	20	50	31	4	150	2176	800	1764	1550 × 910 × 1355
GA-OX-60/4-150	18.5	25	60	37	4	150	2176	800	1764	1550 × 910 × 1355
GA-OX-70/4-150	22	30	70	44	4	150	2176	980	2161	1850 × 1600 × 1600
GA-OX-80/4-150	30	40	80	50	4	150	2176	1150	2535	1850 × 1600 × 1600
GA-OX-90/4-150	30	40	90	56	4	150	2176	1150	2535	1850 × 1600 × 1600
GA-OX-100/4-150	30	40	100	62	4	150	2176	1150	2535	1850 × 1600 × 1600
GA-OX-120/4-120	—	—	120	75	4	120	1740	1350	2976	1850 × 1800 × 1600

Oxygen machines are supplied with material documentation for the wetted parts and the cleaning records for the gas path, as part of the supply rather than as an extra. Connected pipework must be cleaned to the same condition or the installation is not safe. Imperial figures are converted and rounded.

What we need to quote any of these

- The gas, and the composition range across a year
- Suction pressure and temperature
- Discharge pressure
- Flow, at the suction condition
- The area classification at the installation
- Whether the duty can be interrupted

SEND US THE ANALYSIS, NOT THE MODEL NUMBER

Everything in this document is a starting point. The six numbers on page 8 are what actually select a gas machine, and the first of them is the one most enquiries leave out: not a single sample, but the range of compositions the plant will really see between one maintenance shutdown and the next. A machine chosen on one good analysis can sit well off its curve on a worse one. Send us those six and you get back a written selection that names the machine, says what it is made of and why, sets out the staging, the sealing and the protection, and gives a dated programme. If the honest answer is that the duty suits a different technology, the recommendation will say so.

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Specifications are subject to change without notice. Figures are nominal and apply at the reference conditions stated. © Green Air Compressor.

