INDUSTRIALS GROUP

Gardner Denver

Nitrogen Gas Sizing & Selection Guide

Innovative Compressed Air Treatment

Important information

Gardner Denver PSA Generator Models

1) Sizing is based on ambient, (surrounding) air temperature

2) Inlet air quality required: -40°C pressure dewpoint, 0.01 micron particulate and 0.01mg/m³ oil

3) When selecting a generator complete with a pre-treatment package, allow 1 bar g pressure differential. e.g. if air pressure available is 7 bar g, allow 7 bar g into pre-treatment package and 6 bar g into generator inlet port

4) As a guide, initial selection of a PSA generator should be for use within the purity range 2% to 10ppm maximum remaining oxygen content

GDX Pre-treatment packages

1) Sizing is based on two inlet air temperature ranges up to 35°C and from 35°C to 45°C

2) To size a pre-treatment package, size the generator, then select pre-treatment package allowing 1 bar g pressure differential as described above. Do not forget to include purge flow within the total air inlet requirements

Flow Data

- All flow rates are based on a reference m³ at 20°C, 1013 millibar absolute and 0% relative water vapour pressure
- For sizing based on given flow rates specified in Nm³ (normal metres cubed) at 0°C, multiply by 1.08 to achieve correct generator selection flow e.g. Flow rate from customers flow meter calibrated in Nm³/hr reads 100Nm³/hr. Size the generator based upon 100 x 1.08 = 108m³/hr

Purity Definitions	
Gas Company = Nitrogen Content	Gardner Denver = Oxygen Content + N_2 & Ar
95%	5%
98%	2%
99%	1%
99.5%	0.5%
99.9%	0.1%
99.95%	500ppm
99.975%	250ppm
99.99%	100ppm
99.995%	50ppm
99.999%	10ppm
99.9995%	5ppm

Purity Definitions

Important to note that when specifying gas purity Gardner Denver advises the oxygen content.

This is because:

1. Small amounts of Argon, (up to 0.9%), and other trace gases will be present

2. Parker measure the oxygen content from the generator. So it is easy to substantiate

3. If the generator output is specified as 99.99% N_2 for example it could create problems because of the Argon content

4. A solution is to specify – “100ppm maximum remaining oxygen content” and if it is absolutely necessary - “balance inert gas”

Gardner Denver PSA Sizing example

1) Understand the flow, purity and air inlet pressure available

2) To allow for pressure drop across GDX pre-treatment package, select the generator inlet pressure 1 bar g below air pressure available. For example, if air pressure is 8 bar g, select the generator based upon 7 bar g inlet

3) If ambient air temperature is above or below 20°C - 25°C, multiply generator output by the temperature correction factor to obtain revised output

4) To calculate air consumption of the generator, multiply output of generator at 20°C - 25°C by air to nitrogen ratio. If calculating flows at other temperatures do not use the revised nitrogen output, only use the nitrogen output at 20°C - 25°C

5) To select the correct pre-treatment dryer, choose the unit from dryer selection table based on air inlet temperature and pressure

6) To calculate total air consumption, add the dryer purge flow to the nitrogen generator air consumption

Example 1

Nitrogen flow rate required	30m³/hr
Purity required	0.1%
Ambient air temperature	20°C
Factory air pressure available	7 bar g

Select the generator based on air available minus 1 bar g = 6 bar g

At 6 bar g air inlet a GDN2-55P will produce 30.9m³/h. Air:

GDN2-55P ratio is 3.4:1. Therefore 30.9 x 3.4 = 105m³/h air inlet flow requirement to generator.

Selected from dryer table a GDX25 at 7 bar g inlet pressure will flow up to 122.7m³/h outlet with 26.8m³/h purge flow.

To calculate total air inlet requirement to pre-treatment package add the generator air inlet flow to the dryer purge flow.

105m³/h + 26.8m³/h = 131.8m³/h

Example 2

Nitrogen flow rate required	17m³/hr
Purity required	100ppm
Ambient air temperature	35°C
Factory air pressure available	8 bar g

A GDN2-45P will have a reduced flow of 20m³/h x 0.88 (temperature correction factor for 35°C) = 17.6m³/h

To obtain air inlet requirement ignore the temperature correction factor so 20m³/hr x air : ratio for a GDN2-45P is 4.61:1 = 92.2m³/hr

As ambient temperature is 35°C the air inlet temperature to the pre-treatment package is likely to be slightly higher, so use the dryer performance at up to 45°C

At up to 45°C a GDX25 at 8 bar g air inlet will have an output flow capability of up to 121.17m³/hr with a purge requirement of 26.84m³/hr

To calculate the total air inlet requirement to the pre-treatment package add the generator inlet flow to the dryer purge air requirement. 92.2m³/hr + 26.84m³/hr = 119m³/hr

GDN2 Models GDN20033 to GDN20090

Temperature correction factor

Ambient Temp °C	5	10	15	20	25	30	35	40	45*	50*
Correction Factor	0.8	0.9	0.94	1	1	0.98	0.95	0.9	0.85	0.72

*Consult Gardner Denver

6 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	0.5	1.1	1.3	1.7	2.1	3.0	3.8	5.1	6.3	7.4	8.3
GDN20072	1.1	2.1	2.8	3.4	4.1	6.1	7.5	10.2	12.6	14.7	16.5
GDN20090	1.3	2.8	3.7	4.7	5.7	8.4	10.1	13.4	16.5	19.1	21.6
Air : N2	9.2	6.2	5.4	4.7	3.9	3.2	2.9	2.5	2.3	2.2	2.1
Outlet (bar)	4.8	4.8	5.1	5.0	4.9	4.9	5.1	5.0	5.0	4.9	4.8

7 bar g inlet pressure

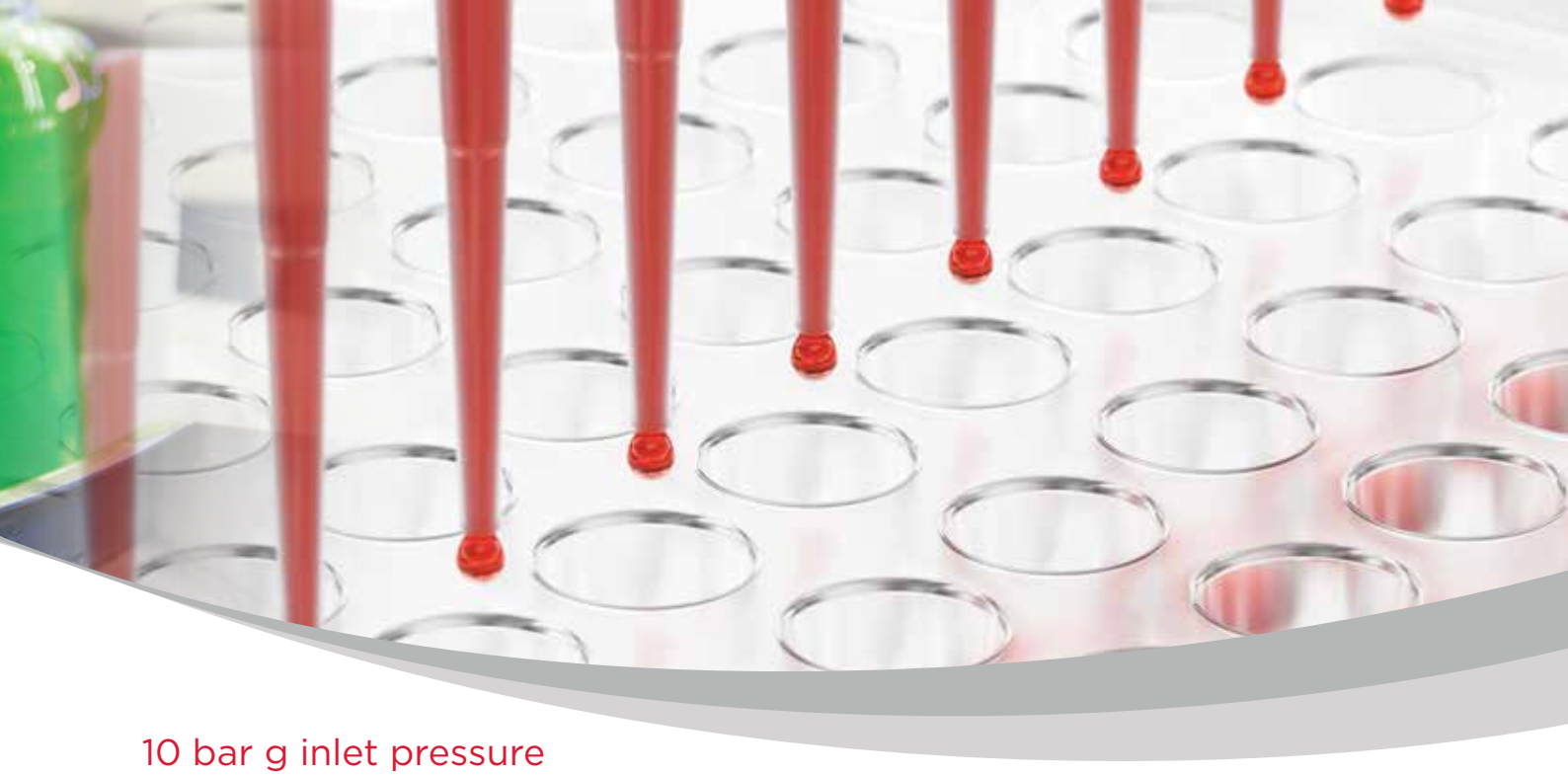
Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	0.55	1.2	1.5	1.9	2.4	3.4	4.3	5.8	7.2	8.4	9.4
GDN20072	1.2	2.4	3.2	3.9	4.7	6.9	8.5	11.6	14.3	16.7	18.8
GDN20090	1.5	3.2	4.2	5.3	6.5	9.5	11.5	15.2	18.7	21.7	24.5
Air : N2	9.6	6.5	5.6	4.9	3.9	3.2	2.9	2.5	2.3	2.2	2.1
Outlet (bar)	5.6	5.4	5.9	5.7	5.6	5.7	6.0	6.0	5.8	5.7	5.6

8 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	0.55	1.2	1.5	1.9	2.6	3.7	4.7	6.4	7.9	9.2	10.3
GDN20072	1.2	2.4	3.2	3.9	5.2	7.6	9.4	12.8	15.7	18.4	20.7
GDN20090	1.5	3.2	4.2	5.3	7.2	10.5	12.7	16.7	20.6	23.9	27.0
Air : N2	10.1	6.9	5.9	5.2	3.9	3.2	2.9	2.5	2.3	2.2	2.1
Outlet (bar)	6.6	6.1	6.6	6.4	6.0	6.4	6.6	6.5	6.4	6.2	6.0

9 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	0.55	1.2	1.5	1.9	2.9	4.1	5.2	7.0	8.6	10.1	11.3
GDN20072	1.2	2.4	3.2	3.9	5.6	8.3	10.2	13.9	17.2	20.0	22.6
GDN20090	1.5	3.2	4.2	5.3	7.8	11.4	13.8	18.2	22.4	26.0	29.4
Air : N2	10.4	7.1	6.1	5.3	4.0	3.3	3.0	2.6	2.3	2.2	2.1
Outlet (bar)	7.2	6.7	7.1	6.9	6.6	6.7	7.8	7.3	7.4	6.8	6.9



10 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	0.55	1.2	1.5	1.9	3.0	4.3	5.4	7.3	9.0	10.5	11.8
GDN20072	1.2	2.4	3.2	3.9	5.9	8.6	10.6	14.5	17.9	20.9	23.5
GDN20090	1.5	3.2	4.2	5.3	8.1	11.9	14.4	19.0	23.4	27.1	30.6
Air : N2	10.7	7.2	6.2	5.4	4.0	3.3	3.0	2.6	2.4	2.3	2.2
Outlet (bar)	7.6	7.2	7.7	7.4	6.8	7.0	8.4	8.1	7.8	7.6	7.3

11 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	N/A	N/A	N/A	N/A	3.1	4.5	5.6	7.6	9.4	11.0	12.3
GDN20072	N/A	N/A	N/A	N/A	6.2	9.0	11.1	15.2	18.7	21.9	24.6
GDN20090	N/A	N/A	N/A	N/A	8.5	12.4	15.1	19.9	24.5	28.4	32.1
Air : N2	-	-	-	-	4.1	3.4	3.0	2.6	2.4	2.3	2.2
Outlet (bar)	-	-	-	-	9.4	8.8	9.8	9.1	9.5	8.7	9.0

12 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	N/A	N/A	N/A	N/A	3.2	4.6	5.8	7.8	9.6	11.3	12.6
GDN20072	N/A	N/A	N/A	N/A	6.3	9.2	11.4	15.5	19.2	22.4	25.2
GDN20090	N/A	N/A	N/A	N/A	8.7	12.7	15.4	20.4	25.1	29.1	32.8
Air : N2	-	-	-	-	4.2	3.5	3.1	2.7	2.5	2.4	2.3
Outlet (bar)	-	-	-	-	9.8	8.9	10.2	10.0	9.7	9.6	9.4

13 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)										
	10ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1%	2%	3%	4%	5%
GDN20033	N/A	N/A	N/A	N/A	3.3	4.6	5.8	7.9	9.8	11.4	12.8
GDN20072	N/A	N/A	N/A	N/A	6.4	9.4	11.6	15.8	19.4	22.7	25.6
GDN20090	N/A	N/A	N/A	N/A	8.8	12.9	15.6	20.7	25.4	29.5	33.3
Air : N2	-	-	-	-	4.4	3.6	3.2	2.8	2.6	2.5	2.4
Outlet (bar)	-	-	-	-	10.6	9.3	11.0	10.6	10.4	9.9	9.8

GDN2 Models GDN2-20P to GDN2-80P

Temperature correction factor

Ambient Temp °C	5	10	15	20	25	30	35	40	45*	50*
5-10ppm	0.8	0.9	0.94	1.0	0.98	0.95	0.86	0.76	0.66	0.56
50-500ppm	0.8	0.9	0.94	1.0	0.98	0.96	0.88	0.81	0.73	0.65
0.1%-5.0%	0.8	0.9	0.94	1.0	0.98	0.96	0.91	0.85	0.80	0.74

*Consult Gardner Denver

5 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	2.1	2.7	4.4	5.2	6.3	7.2	8.1	11.2	11.9	14.3	16.9	21.5	22.2	24.3
GDN2-25P	3.1	4.0	6.5	7.8	9.5	10.8	12.1	16.8	17.8	21.4	25.4	32.2	33.4	36.4
GDN2-35P	4.1	5.3	8.7	10.4	12.6	14.4	16.1	22.4	23.7	28.5	33.9	42.9	44.5	48.5
GDN2-45P	5.2	6.6	10.9	13.0	15.8	18.0	20.1	28.0	29.6	35.7	42.4	53.6	55.6	60.7
GDN2-55P	6.2	8.0	13.1	15.6	18.9	21.6	24.2	33.6	35.6	42.8	50.8	64.4	66.7	72.8
GDN2-60P	6.9	9.0	14.5	17.3	21.0	24.0	26.8	37.2	39.4	47.4	56.4	71.3	73.8	80.7
GDN2-65P	7.8	10.1	16.5	19.8	24.0	27.4	30.6	42.5	45.1	54.2	64.4	81.5	84.5	92.2
GDN2-75P	8.5	11.0	18.0	21.5	26.1	29.9	33.4	46.3	49.1	59.1	70.2	88.8	92.1	100.4
GDN2-80P	9.5	12.2	20.0	23.9	29.0	33.2	37.9	51.5	54.5	65.6	78.0	98.7	102.3	111.6
Air : GDN2 (20P-55P)	9.1	7.2	5.1	4.6	4.1	3.7	3.4	2.9	2.8	2.6	2.3	2.2	2.2	2.1
Air : GDN2 (60P-65P)	9.8	7.6	5.3	4.9	4.3	3.9	3.5	3.0	2.9	2.7	2.5	2.3	2.3	2.2
Air : GDN2 (75P-80P)	10.1	7.8	5.5	5.0	4.4	4.0	3.7	3.1	3.0	2.8	2.5	2.4	2.4	2.3
Outlet (bar g)	4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.1	4.1	4.0	3.9	3.8	3.7	3.7

6 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	2.8	3.6	5.6	6.6	8.0	9.2	10.3	13.9	14.7	17.7	21.0	25.6	26.6	29.0
GDN2-25P	4.1	5.3	8.3	10.0	12.1	13.9	15.4	20.8	22.1	26.5	31.5	38.4	39.9	43.5
GDN2-35P	5.5	7.1	11.1	13.3	16.1	18.4	20.6	27.7	29.4	35.4	42.0	51.3	53.1	58.0
GDN2-45P	6.9	8.9	13.9	16.6	20.1	23.1	25.7	34.6	36.7	44.2	52.5	64.1	66.4	72.5
GDN2-55P	8.3	10.7	16.7	19.9	24.1	27.7	30.9	41.6	44.1	53.0	63.0	76.9	79.7	86.9
GDN2-60P	9.2	11.8	18.5	22.1	26.8	30.7	34.2	46.1	48.8	58.8	69.8	85.2	88.4	96.4
GDN2-65P	10.5	13.5	21.1	25.3	30.6	35.0	39.1	52.7	55.8	67.2	79.8	97.4	101.0	110.1
GDN2-75P	11.4	14.7	23.0	27.5	33.3	38.1	42.6	57.4	60.8	73.2	87.0	106.1	110.0	120.0
GDN2-80P	12.7	16.3	25.6	30.5	37.0	42.4	47.3	63.8	67.6	81.3	96.6	117.9	122.2	133.3
Air : GDN2 (20P-55P)	9.3	7.2	5.0	4.6	4.1	3.7	3.4	2.9	2.8	2.6	2.3	2.2	2.2	2.1
Air : GDN2 (60P-65P)	9.8	7.6	5.3	4.9	4.3	3.9	3.5	3.0	2.9	2.7	2.5	2.3	2.3	2.2
Air : GDN2 (75P-80P)	10.1	7.8	5.5	5.0	4.4	4.0	3.7	3.1	3.0	2.8	2.5	2.4	2.4	2.3
Outlet (bar g)	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.0	4.9	4.8	4.8	4.7	4.6	4.6

7 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	3.5	4.5	6.7	8.0	9.7	11.1	12.4	16.7	17.7	21.3	25.3	29.8	30.9	33.7
GDN2-25P	5.3	6.8	10.1	12.0	14.6	16.7	18.6	25.1	26.6	32.0	38.0	44.7	46.4	50.6
GDN2-35P	7.0	9.0	13.4	16.0	19.4	22.2	24.8	33.4	35.4	42.6	50.6	59.6	61.8	67.4
GDN2-45P	8.8	11.3	16.8	20.0	24.3	27.8	31.0	41.8	44.3	53.3	63.3	74.5	77.3	84.3
GDN2-55P	10.5	13.5	20.1	24.0	29.1	33.3	37.2	50.1	53.1	63.9	75.9	89.4	92.7	101.1
GDN2-60P	11.6	15.0	22.3	26.6	32.3	36.9	41.2	55.5	58.9	70.8	84.1	99.1	102.7	112.1
GDN2-65P	13.3	17.1	25.5	30.4	36.9	42.2	47.1	63.5	67.3	80.9	96.1	113.2	117.4	128.1
GDN2-75P	14.5	18.6	27.7	33.1	40.2	46.0	51.3	69.1	73.3	88.2	104.7	123.4	127.9	139.5
GDN2-80P	16.1	20.7	30.8	36.8	44.6	51.1	57.0	76.8	81.4	98.0	116.4	137.1	142.1	155.0
Air : GDN2 (20P-55P)	9.3	7.2	5.1	4.6	4.1	3.8	3.4	2.9	2.8	2.6	2.3	2.2	2.2	2.1
Air : GDN2 (60P-65P)	9.8	7.6	5.3	4.9	4.3	3.9	3.5	3.0	2.9	2.7	2.5	2.3	2.3	2.2
Air : GDN2 (75P-80P)	10.1	7.8	5.5	5.0	4.4	4.0	3.7	3.1	3.0	2.8	2.5	2.4	2.4	2.3
Outlet (bar g)	6.0	6.0	6.0	6.0	6.0	6.0	5.8	5.8	5.7	5.7	5.6	5.5	5.4	5.4

8 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	4.0	5.2	7.5	9.0	10.9	12.4	13.9	18.5	19.6	23.2	27.6	32.5	33.7	36.7
GDN2-25P	6.0	7.8	11.3	13.4	16.3	18.6	20.8	27.8	29.5	34.8	41.4	48.7	50.5	55.1
GDN2-35P	8.0	10.3	15.0	17.9	21.7	24.9	27.8	37.1	39.3	46.4	55.1	65.0	67.4	73.5
GDN2-45P	10.1	12.9	18.8	22.4	27.2	31.1	34.7	46.3	49.1	58.0	68.9	81.2	84.2	91.8
GDN2-55P	12.1	15.5	22.5	26.9	32.6	37.3	41.7	55.6	58.9	69.6	82.7	97.4	101.0	110.2
GDN2-60P	13.4	17.2	24.9	29.8	36.1	41.3	46.2	61.6	65.3	77.2	91.7	108.0	112.0	122.1
GDN2-65P	15.3	19.7	28.5	34.0	41.3	47.2	52.8	70.4	74.7	88.2	104.8	123.4	128.0	139.6
GDN2-75P	16.7	21.4	31.1	37.1	45.0	51.5	57.5	76.7	81.3	96.1	114.2	134.5	139.4	152.1
GDN2-80P	18.5	23.8	34.5	41.2	50.0	57.2	63.9	85.3	90.4	106.8	126.8	149.4	154.9	169.0
Air : GDN2 (20P-55P)	9.3	7.2	5.1	4.6	4.1	3.7	3.4	2.9	2.8	2.6	2.3	2.2	2.2	2.2
Air : GDN2 (60P-65P)	9.8	7.6	5.3	4.9	4.3	3.9	3.5	3.0	2.9	2.7	2.5	2.3	2.3	2.2
Air : GDN2 (75P-80P)	10.1	7.8	5.5	5.0	4.4	4.0	3.7	3.1	3.0	2.8	2.5	2.4	2.4	2.3
Outlet (bar g)	6.9	6.9	6.9	6.8	6.8	6.7	6.7	6.6	6.6	6.5	6.4	6.3	6.2	6.2

9 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	4.5	5.8	8.3	9.9	12.0	13.8	15.4	20.4	21.6	25.3	30.1	35.5	36.8	40.10
GDN2-25P	6.8	8.8	12.5	14.9	18.0	20.6	23.1	30.6	32.4	38.0	45.2	53.2	55.2	60.15
GDN2-35P	9.1	11.7	16.6	19.8	24.1	27.5	30.7	40.7	43.2	50.7	60.2	70.9	73.5	80.21
GDN2-45P	11.4	14.6	20.8	24.8	30.1	34.4	38.4	50.9	54.0	63.4	75.3	88.7	91.9	100.3
GDN2-55P	13.6	17.5	24.9	29.8	36.1	41.3	46.1	61.1	64.8	76.0	90.3	106.4	110.3	120.3
GDN2-60P	15.1	19.4	27.6	33.0	40.0	45.8	51.1	67.7	71.8	84.3	100.1	117.9	122.3	133.4
GDN2-65P	17.3	22.2	31.6	37.7	45.7	52.3	58.4	77.4	82.1	96.3	114.4	134.8	139.7	152.4
GDN2-75P	18.8	24.2	34.4	41.1	49.8	57.0	63.7	84.3	89.4	104.9	124.6	146.8	152.2	166.0
GDN2-80P	20.9	26.9	38.2	45.6	55.3	63.3	70.7	93.7	99.3	116.6	138.5	163.1	169.1	184.5
Air : GDN2 (20P-55P)	9.3	7.2	5.1	4.6	4.1	3.7	3.4	2.9	2.8	2.6	2.3	2.2	2.2	2.1
Air : GDN2 (60P-65P)	9.8	7.6	5.3	4.9	4.3	3.9	3.5	3.0	2.9	2.7	2.5	2.3	2.3	2.2
Air : GDN2 (75P-80P)	10.1	7.8	5.5	5.0	4.4	4.0	3.7	3.1	3.0	2.8	2.5	2.4	2.4	2.3
Outlet (bar g)	7.8	7.8	7.8	7.7	7.7	7.6	7.5	7.4	7.4	7.2	7.1	7.0	6.9	6.9

10 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	5.1	6.5	9.2	11.0	13.3	15.2	17.0	22.0	23.4	27.3	32.4	38.1	39.5	43.1
GDN2-25P	7.6	9.8	13.8	16.4	19.9	22.8	25.5	33.1	35.0	40.9	48.6	57.2	59.3	64.7
GDN2-35P	10.1	13.0	18.4	21.9	26.6	30.4	34.0	44.1	46.7	54.5	64.8	76.3	79.1	86.3
GDN2-45P	12.7	16.3	22.9	27.4	33.2	38.0	42.5	55.1	58.4	68.2	81.0	95.4	98.9	107.8
GDN2-55P	15.2	19.6	27.5	32.9	39.9	45.6	51.0	66.1	70.1	81.8	97.1	114.4	118.7	129.4
GDN2-60P	16.9	21.7	30.5	36.4	44.2	50.6	56.5	73.3	77.7	90.6	107.7	126.8	131.5	143.4
GDN2-65P	19.3	24.8	34.9	41.6	50.5	57.8	64.5	83.8	88.8	103.6	123.1	144.9	150.3	163.9
GDN2-75P	21.0	27.0	38.0	45.4	55.0	63.0	70.3	91.3	96.7	112.9	134.1	157.9	163.7	178.6
GDN2-80P	23.3	30.0	42.2	50.4	61.1	69.9	78.1	101.4	107.5	125.4	149.0	175.5	181.9	198.4
Air : GDN2 (20P-55P)	9.3	7.2	51.0	4.6	4.1	3.7	3.4	2.9	2.8	2.6	2.3	2.2	2.19	2.1
Air : GDN2 (60P-65P)	10.0	7.6	5.3	4.9	4.3	3.9	3.5	3.0	2.9	2.7	2.5	2.3	2.3	2.2
Air : GDN2 (75P-80P)	10.1	7.8	5.5	5.0	4.4	4.0	3.7	3.1	3.0	2.8	2.5	2.4	2.4	2.3
Outlet (bar g)	8.7	8.7	8.7	8.6	8.5	8.4	8.3	8.3	8.2	8.0	7.9	7.7	7.66	7.6

11 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	5.4	6.9	9.5	11.4	13.8	15.8	17.6	23.0	24.4	28.3	33.6	39.6	41.1	44.8
GDN2-25P	8.1	10.4	14.3	17.0	20.7	23.7	26.4	34.6	36.6	42.5	50.5	59.4	61.6	67.2
GDN2-35P	10.8	13.9	19.0	22.7	27.5	31.5	35.2	46.1	48.8	56.7	67.3	79.3	82.2	89.6
GDN2-45P	13.5	17.3	23.8	28.4	34.4	39.4	44.0	57.6	61.1	70.8	84.1	99.1	102.7	112.1
GDN2-55P	16.2	20.8	28.5	34.1	41.3	47.3	52.9	69.1	73.3	85.0	100.9	118.9	123.3	134.5
GDN2-60P	17.9	23.0	31.6	37.8	45.8	52.4	58.5	76.7	81.2	94.2	111.9	131.8	136.6	149.0
GDN2-65P	20.5	26.3	36.1	43.2	52.3	59.9	66.9	87.6	92.8	107.6	127.9	150.6	156.2	170.3
GDN2-75P	22.3	28.7	39.4	47.0	57.0	65.2	72.9	95.4	101.1	117.3	139.3	164.1	170.1	185.6
GDN2-80P	24.8	31.9	43.8	52.3	63.4	72.5	81.0	106.0	112.4	130.3	154.8	182.3	189.0	206.2
Air : GDN2 (20P-55P)	10.2	7.9	5.6	5.1	4.5	4.1	3.7	3.2	3.08	2.8	2.6	2.4	2.4	2.33
Air : GDN2 (60P-65P)	10.7	8.3	5.9	5.3	4.7	4.3	3.9	3.3	3.2	3.0	2.7	2.6	2.5	2.5
Air : GDN2 (75P-80P)	11.1	8.6	6.1	5.5	4.9	4.4	4.0	3.4	3.3	3.1	2.8	2.6	2.6	2.5
Outlet (bar g)	9.6	9.6	9.6	9.5	9.4	9.3	9.2	9.1	9.0	8.8	8.6	8.4	8.3	8.3

12 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	5.7	7.3	9.9	11.8	14.4	16.4	18.3	23.9	25.3	29.4	34.9	41.1	42.6	46.5
GDN2-25P	8.6	11.0	14.9	17.8	21.5	24.6	27.5	35.8	38.0	44.1	52.4	61.7	64.0	69.8
GDN2-35P	11.4	14.7	19.8	23.7	28.7	32.9	36.7	47.7	50.6	58.8	69.8	82.2	85.3	93.0
GDN2-45P	14.3	18.3	24.8	29.6	35.9	41.1	45.9	59.7	63.3	73.5	87.3	102.8	106.6	116.3
N2-55P	17.1	22.0	29.7	35.5	43.1	49.3	55.1	71.6	75.9	88.2	104.7	123.4	127.9	139.5
N2-60P	19.0	24.4	33.0	39.4	47.7	54.6	61.0	79.4	84.2	97.7	116.1	136.7	141.8	154.6
N2-65P	21.7	27.9	37.7	45.0	54.5	62.4	69.7	90.7	96.2	111.7	132.7	156.3	162.0	176.7
N2-75P	23.6	30.4	41.0	49.0	59.4	68.0	76.0	98.9	104.8	121.7	144.5	170.2	176.5	192.5
N2-80P	26.2	33.7	45.6	54.5	66.0	75.6	84.4	109.8	116.4	135.2	160.6	189.2	196.1	213.9
Air : N2 (20P-55P)	10.2	7.9	5.6	5.1	4.5	4.1	3.7	3.2	3.1	2.8	2.6	2.4	2.4	2.3
Air : N2 (60P-65P)	10.7	8.3	5.9	5.3	4.7	4.3	3.9	3.3	3.2	3.0	2.7	2.6	2.5	2.5
Air : N2 (75P-80P)	11.1	8.6	6.1	5.5	4.9	4.4	4.0	3.4	3.3	3.1	2.8	2.6	2.6	2.5
Outlet (bar g)	10.5	10.5	10.5	10.4	10.3	10.2	10.0	9.9	9.8	9.5	9.3	9.0	9.0	8.9

13 bar g inlet pressure

Model	Nitrogen flow rates m³/hr vs Purity (oxygen content)													
	5ppm	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.40%	0.50%	1%	2%	3%	4%	5%
GDN2-20P	6.0	7.7	10.2	12.2	14.8	17.0	19.0	24.9	26.4	30.2	35.9	42.3	43.9	47.8
GDN2-25P	9.0	11.6	15.4	18.4	22.3	25.5	28.5	37.3	39.6	45.4	53.9	63.5	65.8	71.8
GDN2-35P	12.0	15.5	20.5	24.5	29.7	34.0	37.9	49.8	52.7	60.5	71.8	84.6	87.8	95.7
GDN2-45P	15.0	19.3	25.6	30.6	37.1	42.5	47.4	62.2	65.9	75.6	89.8	105.8	109.7	119.6
GDN2-55P	18.1	23.2	30.7	36.7	44.5	50.9	56.9	74.6	79.1	90.7	107.8	126.9	131.6	143.6
GDN2-60P	20.0	25.7	34.1	40.7	49.3	56.5	63.1	82.7	87.7	100.6	119.4	140.7	146.0	159.1
GDN2-65P	22.9	29.4	38.9	46.5	56.4	64.5	72.1	94.6	100.2	114.9	136.5	160.8	166.7	181.8
GDN2-75P	24.9	32.0	42.4	50.7	61.4	70.3	78.5	103.0	109.2	125.2	148.7	175.2	181.6	198.1
GDN2-80P	27.7	35.6	47.1	56.3	68.3	78.1	87.3	114.5	121.3	139.1	165.3	194.6	201.8	220.1
Air : GDN2 (20P-55P)	10.2	7.9	5.6	5.1	4.5	4.1	3.7	3.2	3.1	2.8	2.6	2.4	2.4	2.3
Air : GDN2 (60P-65P)	10.7	8.3	5.9	5.3	4.7	4.3	3.9	3.3	3.2	3.0	2.7	2.6	2.5	2.5
Air : GDN2 (75P-80P)	11.1	8.6	6.1	5.5	4.9	4.4	4.0	3.4	3.3	3.1	2.8	2.6	2.6	2.5
Outlet (bar g)	11.4	11.4	11.3	11.2	11.2	11.0	10.9	10.7	10.6	10.3	10.0	9.6	9.5	9.5

Product selection nomenclature

Model

20	4 Chambers
25	6 Chambers
35	8 Chambers
45	10 Chambers
55	12 Chambers
60	14 Chambers
65	16 Chambers
75	18 Chambers
80	20 Chambers

O2 Purity

X	Ultra High Purity (≤10ppm)
A	High Purity (ppm)
B	Low Purity (%)

GD	N	2	-	8	0	P	A	L	N

Energy Saving Technology (EST)

N	No - Does not include this feature
Y	Yes - Includes this feature

Technology

P	Pressure Swing Adsorption (PSA)

Flow

L	Low Flow - (0-60 M³/Hr)
M	Medium Flow - (60-120 M³/Hr)
H	High Flow - (120-300 M³/Hr)

Pre-treatment dryers

To select the correct dryer add 1 bar g to generator inlet pressure e.g. Generator inlet pressure 7 bar g = select dryer 8 bar g air inlet pressure

To calculate total inlet air to pre-treatment = generator air inlet flow + purge flow

Dryer performance based on compressed air inlet temperature.

Reference standard m³ = 20°C, 1013 millibar(a), 0% relative water vapour pressure

Pre-treatment Model	Purge Flow m³/hr	Air Outlet Flow m³/hr @ Stated Inlet Pressure					
		7 bar g	8 bar g	9 bar g	10 bar g	11 bar g	12 bar g
GD2LX up to 35°C	1.7	6.8	6.6	7.4	8.3	9.2	10.3
GD2LX up to 45°C		5.8	5.5	6.4	7.2	8.0	8.8
GD3LX up to 35°C	2.7	10.9	10.5	11.9	13.3	14.7	16.5
GD3LX up to 45°C		9.2	8.8	10.3	11.5	12.8	14.0
GD4LX up to 35°C	3.4	13.6	13.1	14.9	16.6	18.4	20.5
GD4LX up to 45°C		11.5	11	12.8	14.3	15.9	17.6
GD5LX up to 35°C	4.4	17.7	17.1	19.4	21.6	23.9	26.7
GD5LX up to 45°C		15	14.3	15.6	18.6	20.7	22.9
GD6LX up to 35°C	5.1	20.4	19.7	22.3	24.9	27.6	30.8
GD6LX up to 45°C		17.3	16.5	19.2	21.5	23.9	26.4
GD7LX up to 35°C	6.8	27.2	26.2	29.8	33.2	36.8	41.0
GD7LX up to 45°C		23.0	22.0	25.6	28.6	31.8	35.2

Pre-treatment Model	Purge Flow m³/hr	Air Outlet Flow m³/hr @ Stated Inlet Pressure									
		7 bar g	8 bar g	9 bar g	10 bar g	11 bar g	12 bar g	13 bar g	14 bar g	15 bar g	16 bar g
GD7XS up to 35°C	7.31	33.47	38.57	43.66	48.76	53.86	58.96	64.05	69.15	74.25	79.34
GD7XS up to 45°C		28.58	33.06	37.55	42.03	46.52	51	55.49	59.98	64.46	68.95
GD9XS up to 35°C	9.85	44.51	51.31	58.11	64.9	71.7	78.49	85.29	92.09	98.88	105.68
GD9XS up to 45°C		37.99	43.97	49.95	55.93	61.91	67.89	73.87	79.85	85.83	91.81
GD12XS up to 35°C	12.91	58.45	67.37	76.29	85.21	94.13	103.05	111.96	120.88	129.8	138.72
GD12XS up to 45°C		49.88	57.73	65.58	73.43	81.28	89.13	96.98	104.83	112.68	120.53
GD15XS up to 35°C	16.41	73.91	85.16	96.42	107.67	118.93	130.19	141.44	152.7	163.95	175.21
GD15XS up to 45°C		63.1	73.01	82.91	92.82	102.72	112.63	122.53	132.44	142.34	152.25
GD18XS up to 35°C	19.88	90.56	104.36	118.17	131.97	145.78	159.58	173.38	187.19	200.99	214.8
GD18XS up to 45°C		77.3	89.45	101.6	113.75	125.9	138.04	150.19	162.34	174.49	186.64
GD25XS up to 35°C	26.84	122.67	141.36	160.05	178.74	197.43	216.11	234.8	253.49	272.18	290.87
GD25XS up to 45°C		104.73	121.17	137.62	154.07	170.51	186.96	203.41	219.85	236.3	252.74
GD30XS up to 35°C	32.28	147.81	170.33	192.84	215.35	237.86	260.37	282.89	N/A	N/A	N/A
GD30XS up to 45°C		126.2	146.01	165.82	185.63	205.44	225.25	245.07	N/A	N/A	N/A
GD37XS up to 35°C	39.08	181.79	209.4	237.01	264.62	292.23	319.84	347.45	N/A	N/A	N/A
GD37XS up to 45°C		155.29	179.59	203.88	228.18	252.47	276.77	301.06	N/A	N/A	N/A
GD50XS up to 35°C	54.37	244.66	282.04	319.41	356.79	394.17	431.55	468.93	N/A	N/A	N/A
GD50XS up to 45°C		208.77	241.67	274.56	307.45	340.35	373.24	406.13	N/A	N/A	N/A

Pre-treatment Model	Purge Flow	Air Outlet Flow m³/hr @ Stated Inlet Pressure						
	m³/hr	7 bar g	8 bar g	9 bar g	10 bar g	11 bar g	12 bar g	13 bar g
GD068XS up to 35°C	66	342	393	444	495	546	597	648
GD068XS up to 45°C		293	338	383	428	473	517	562
GD102XS up to 35°C	98	513	590	666	743	819	896	972
GD102XS up to 45°C		440	507	574	642	709	776	844
GD127XS up to 35°C	123	642	737	833	928	1024	1120	1215
GD127XS up to 45°C		550	634	718	802	886	970	1055
GD170XS up to 35°C	164	856	983	1111	1238	1366	1493	1620
GD170XS up to 45°C		733	846	958	1070	1182	1294	1406

Pre-treatment dryers part numbers

Model	Part Number (230V 50Hz)
GDX1L	ZS1139433
GDX2L	ZS1139434
GDX3L	ZS1139435
GDX4L	ZS1139436
GDX5L	ZS1139437
GDX6L	ZS1139438
GDX7L	ZS1139439

Model	Part Number (85 - 265V AC 60/50Hz)
GDX7	ZS1139440
GDX9	ZS1139442
GDX12	ZS1139443
GDX15	ZS1139444
GDX18	ZS1139445
GDX25	ZS1139446
GDX30	ZS1139447
GDX37	ZS1139448
GDX50	ZS1139449

Pre-treatment dryers part numbers

Flow Rate (m^3/hr)	Buffer Vessel Sizes (L)
GDX7DS	ZS1139450
GDX9DS	ZS1139452
GDX12DS	ZS1139453
GDX15DS	ZS1139454
GDX18DS	ZS1139455
GDX25DS	ZS1139456
GDX30DS	ZS1139457
GDX37DS	ZS1139459
GDX50DS	ZS1139460
GDX68S	ZS1139461
GDX102S	ZS1139462
GDX127S	ZS1139463
GDX170S	ZS1139464
GDX212S	ZS1139465
GDX255S	ZS1139466
GDX297S	ZS1139468
GDX340S	ZS1139469

Buffer vessel sizes

Flow Rate (m^3/hr)	Buffer Vessel Sizes (L)
0 - 3	50
3.1 - 7.5	150
7.6 - 12.3	250
12.4 - 24	500
24.1 - 34	750

Recommended buffer vessel sizes (litres)

Generator Model	Buffer Vessel Sizes (L)
GDN2-20P	250
GDN2-25P	500
GDN2-35P	500
GDN2-45P	750
GDN2-55P	750
GDN2-60P	750
GDN2-65P	1000
GDN2-75P	1000
GDN2-80P	1000

Gardner Denver

Global Expertise

The GD rotary screw compressor range from 2.2 – 500 kW, available in both variable and fixed speed compression technologies, are designed to meet the highest requirements which the modern work environment and machine operators place on them.

The oil-free EnviroAire range from 15 – 160 kW provides high quality and energy efficient compressed air for use in a wide range of applications. The totally oil-free design eliminates the issue of contaminated air, reducing the risk and associated cost of product spoilage and rework.

A modern production system and process demands increasing levels of air quality. Our complete **Air Treatment Range** ensures the highest product quality and efficient operation.

Compressor systems are typically comprised of multiple compressors delivering air to a common header. The combined capacity of these machines is generally greater than the maximum site demand. To ensure the system is operated to the highest levels of efficiency, the **GD Connect** air management system is essential.

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