

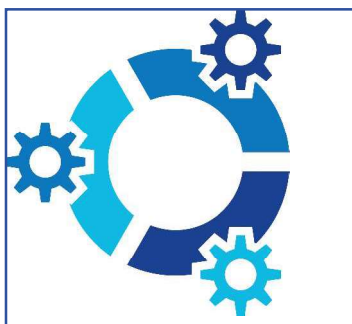
# PRO<sub>2</sub>XY<sup>®</sup> VAC

## VPSA Technology : Vacuum Pressure Swing Adsorption



Oil-less low pressure compressor to feed the oxygen generator.  
No need of air treatment system as for PSA.  
No oil pollution.

Set of pneumatic valves developed internally and extremely reliable.



Low maintenance cost due to 100% oil free process from 0,5 bar to 12 bar.

Better Total Cost Ownership comparing to PSA

Pressure/vacuum tanks made in our internal boiler and filled with zeolite lithium basis.



# VPSA oxygen generators

Oil-less vacuum pump to regenerate the zeolite and participate to energy saving.



Built-in electrical connections on each machine for plug and play installation.



Oil-less scroll oxygen compressor from 0,5 bar to 6 bar driven by variable frequency converter for energy saving.



Oil-less piston booster from 6 to 12 bar for double stage pressure pipeline.



# PRO<sub>2</sub>XY<sup>®</sup> VAC

**Our new VPSA generators will give you a technological edge for oxygen on-site production.**

VPSA is the acronym for Vacuum Pressure Swing Adsorption.

<b>Vacuum :</b>	To help the regeneration / desorption of the molecular sieve
<b>Pressure :</b>	To feed the generator molecular sieve
<b>Swing :</b>	The steady changeover of production bed
<b>Adsorption :</b>	Is based on the ability for porous materials like zeolites to bind gases through their large surface areas.

But it also stands for Innovation :

- No more energy waste to compress nitrogen at several bars.
- Special zeolite with high affinity for water vapor, removing the need of dryer.
- No oil : vacuum pump and blower are oil-less rotary lobe units.

Mil's has drawn from its experience of PSA generators to develop this new concept for reliable production on the hospital site, independent from cylinder or liquid supply.

The adsorption-desorption phenomena described on the next page is similar to the PSA one with its 2 beds systems. However the cycle being carried out at lower pressures, the power consumption will decrease of more than 60% for a constant production of oxygen at 95%.

The new Procom 3 touchscreen panel ensures a trouble free production, with control and record of all the parameters. Paired with the Vigifluid remote monitoring, every connected user can follow and trace back the oxygen quality and events. The synoptic on either screen displays the status of the plant components and also the sensor data required by ISO 7396-1 standard.

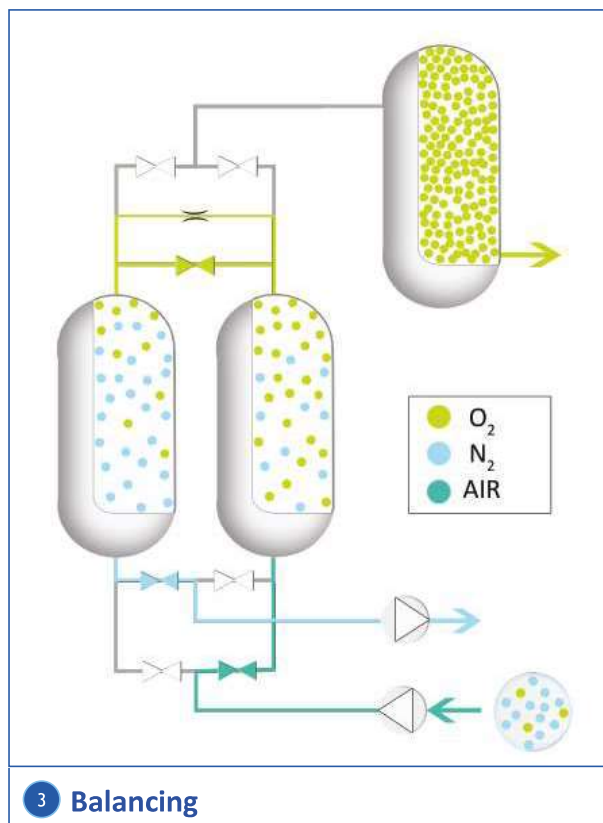
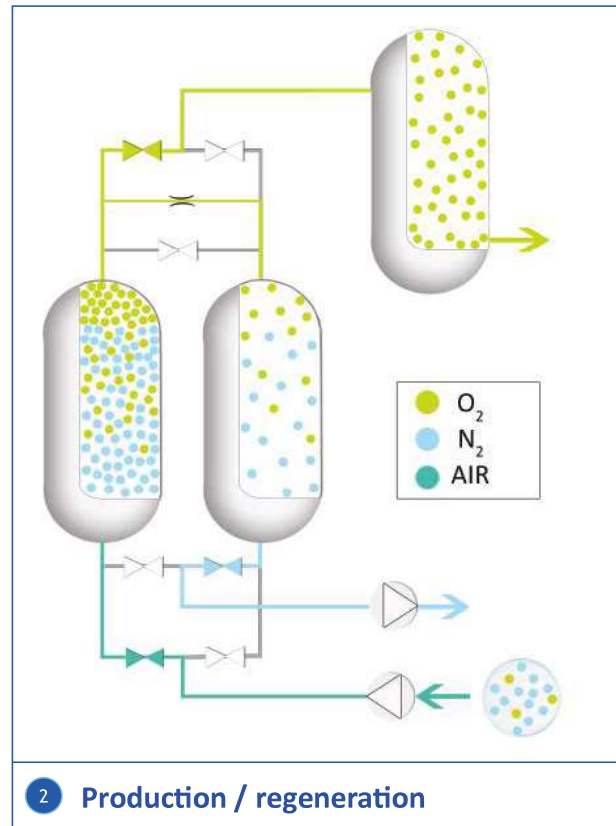
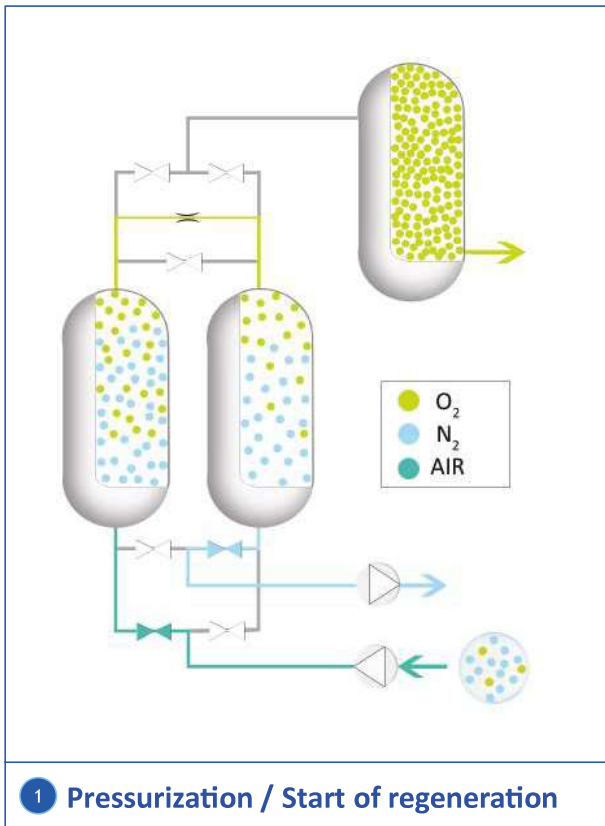
Main advantages :

- Fully automatic on-demand production
- Low operating costs
- Modular design
- Data logging and real time trend of events
- Remote monitoring capability

To assist operating and service, the generators are delivered with their full documentation. Multi-level secured access permits a supervisory control of several plants at once. A visual reminder of the maintenance times is also included on the Procom features.

For the commissioning of your plant, Mil's offers comprehensive start-up contracts where a technical specialist performs final arrangement and trains the end users.

# VPSA oxygen generators



# PRO<sub>2</sub>XY<sup>®</sup> VAC - 5 bar

## VPSA technology

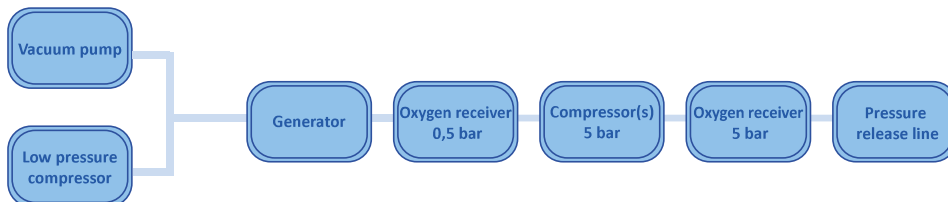
- Totally oil-less process
- Oxygen purity 95 ± 1% or 93 ± 1%
- VPSA technology with low energy consumption
- Quick starting process, reduced time of 60% comparing to PSA
- Automatic calibration of the oxygen sensor(s) (option)
- Reduced maintenance
- Touch PLC control PROCOM3 developed according to EN62304
- Complies with EN 7396-1: 2016
- Environment-friendly



## Characteristics

PRO <sub>2</sub> XY <sup>®</sup> VAC 5 bar version	Flow rate m <sup>3</sup> .h <sup>-1</sup> 50 Hz - 20°C			Total installed power kW			Average power consumption - kW		
	90%	93%	95%	90%	93%	95%	90%	93%	95%
PRO <sub>2</sub> XY <sup>®</sup> VAC 27	34,6	30	27	23,7	23,7	23,7	16,7	16,3	15,7
PRO <sub>2</sub> XY <sup>®</sup> VAC 40	57	50	42	38,8	38,8	34,8	27,4	26,3	24,9

## Process sequence



Legend  
 Pneumatic



- ① Oil free low pressure compressor
- ② VPSA oxygen generator at 0,5 bar
- ③ Oil free vacuum pump
- ④ Buffer tank at 0,5 bar of oxygen
- ⑤ 5 bar O<sub>2</sub> compressor
- ⑥ 5 bar storage tank of oxygen
- ⑦ 5 bar hospital network

- HIGH PRESSURE OPTION
- ⑧ 200 bar - O<sub>2</sub> high pressure booster
  - ⑨ Rack of HP cylinders or cylinder manifolds
  - ⑩ High pressure filling skid for mobile cylinders

## Power supply

3-phase, 400V+N+E / 50Hz



Range complying with  
93/42/CEE directive



Range complying with  
2014/68/UE directive

# VPSA oxygen generators

## Dimensions (mm)

PRO<sub>2</sub>XY® VAC 27



PRO<sub>2</sub>XY® VAC 40



PRO <sub>2</sub> XY® VAC 5 bar	PRO <sub>2</sub> XY® VAC 27		PRO <sub>2</sub> XY® VAC 40	
	Dimensions (mm)	Weight (kg)	Dimensions (mm)	Weight (kg)
① SRP	1130 x 780 x 1200	300	1130 x 780 x 1200	325
② PAV	1250 x 970 x 1300	425	1380 x 970 x 1300	475
③ Generator	1525 x 1735 x 2190	1500	1710 x 1835 x 2250	2000

Compression module PRO<sub>2</sub>XY® VAC 27



Compression module PRO<sub>2</sub>XY® VAC 40



PRO <sub>2</sub> XY® VAC 5 bar	PRO <sub>2</sub> XY® VAC 27 - 93/95 %		PRO <sub>2</sub> XY® VAC 40 - 93 %		PRO <sub>2</sub> XY® VAC 40 - 95 %	
	Dimensions (mm)	Weight (kg)	Dimensions (mm)	Weight (kg)	Dimensions (mm)	Weight (kg)
⑤ Compression module	1276 x 540 x 1273	170	1279 x 1115 x 1475	300	1276 x 540 x 1273	220
④ RT tank	1200 x 880 x 2380 1000 l	220	1490 x 1210 x 2520 2000 l	395	1490 x 1210 x 2520 2000 l	395
⑥ RP O <sub>2</sub> tank	1000 x 880 x 2380 1000 l	220	1400 x 1210 x 2520 2000 l	395	1400 x 1210 x 2520 2000 l	395

## Plant references

PRO <sub>2</sub> XY® VAC - 5 bar		PRO <sub>2</sub> XY® VAC 27		PRO <sub>2</sub> XY® VAC 40	
		93 %	95 %	93 %	95 %
PRO <sub>2</sub> XY® VAC	Single line	924972	924674	924976	924682
Final filtration	Simple	824211	824211	824217	824217
PRO <sub>2</sub> XY® VAC	Multi-line A	924973	924675	924977	924683
PRO <sub>2</sub> XY® VAC	Multi-line B	924974	924676	924978	924684
PRO <sub>2</sub> XY® VAC	Multi-line C	924975	924677	924979	924685
Final filtration	Duplex	824212	824212	824218	824218

## Accessories and option references

O <sub>2</sub> paramagnetic analyzer	manual calibration	724565	O <sub>2</sub> ambient analyzer	622709
O <sub>2</sub> paramagnetic analyzer	automatic calibration	724566	O <sub>2</sub> hygrometry sensor	823735
Redundancy box for O <sub>2</sub> analyzer (EN62304)		724564	CO KIT analyzer	724912
Redundancy box for HP (EN62304)		724752	CO / CO <sub>2</sub> KIT analyzer	724914
2 <sup>nd</sup> O <sub>2</sub> paramagnetic analyzer	manual calibration	724627	O <sub>2</sub> flowmeter G1/2"	624683
2 <sup>nd</sup> O <sub>2</sub> paramagnetic analyzer	automatic calibration	724628	24VCC power supply	625004
O <sub>2</sub> zirconium analyzer	zirconium	625616	Energy monitoring - 100A	625090

Specifications are subject to be changed without notice

# PRO<sub>2</sub>XY<sup>®</sup> VAC - 12 bar

## VPSA technology

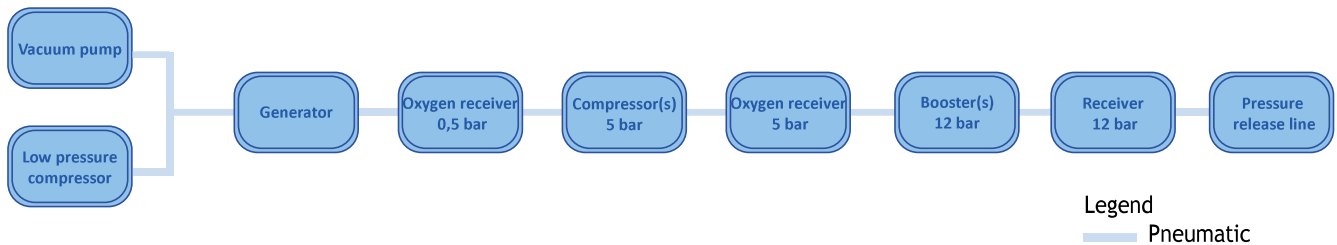
- Totally oil-less process
- Oxygen purity 95 ± 1% or 93 ± 1%
- VPSA technology with low energy consumption
- Quick starting process, reduced time of 60% comparing to PSA
- Automatic calibration of the oxygen sensor(s) (option)
- Reduced maintenance
- Touch PLC control PROCOM3 developed according to EN62304
- Complies with EN 7396-1: 2016
- Environment-friendly



## Characteristics

PRO <sub>2</sub> XY <sup>®</sup> VAC 12 bar version	Flow rate *m <sup>3</sup> .h <sup>-1</sup> 50 Hz - 20°C			Total installed power kW			Average power consumption - kW		
	90%	93%	95%	90%	93%	95%	90%	93%	95%
PRO <sub>2</sub> XY <sup>®</sup> VAC 27	34,6	30	27	26,7	26	26	17,7	17,1	16,6
PRO <sub>2</sub> XY <sup>®</sup> VAC 40	57	50	42	43,3	42,6	38,6	29,8	28,3	27,1

## Process sequence



- ① Oil free low pressure compressor
- ② VPSA oxygen generator at 0,5 bar
- ③ Oil free vacuum pump
- ④ Buffer tank at 0,5 bar of oxygen
- ⑤ 5 bar O<sub>2</sub> compressor
- ⑥ 5 bar storage tank of oxygen
- ⑦ 5 bar hospital network
- ⑧ 12 bar O<sub>2</sub> booster
- ⑨ 12 bar storage tank of oxygen
- ⑩ 12 bar hospital network

- HIGH PRESSURE OPTION
- ⑪ 200 bar - O<sub>2</sub> high pressure booster
  - ⑫ Rack of HP cylinders or cylinder manifolds
  - ⑬ High pressure filling skid for mobile cylinders

## Power supply

3-phase, 400V+N+E / 50Hz



Range complying with  
93/42/CEE directive



Range complying with  
2014/68/UE directive

# VPSA oxygen generators

## Dimensions (mm)

PRO<sub>2</sub>XY® VAC 27



PRO<sub>2</sub>XY® VAC 40



PRO <sub>2</sub> XY® VAC 12 bar	PRO <sub>2</sub> XY® VAC 27		PRO <sub>2</sub> XY® VAC 40	
	Dimensions (mm)	Weight (kg)	Dimensions (mm)	Weight (kg)
1 SRP	1130 x 780 x 1200	300	1130 x 780 x 1200	325
2 PAV	1200 x 970 x 1300	425	1380 x 970 x 1300	475
3 Generator	1525 x 1735 x 2190	1500	1710 x 1835 x 2250	2000

Compression module PRO<sub>2</sub>XY® VAC 27



Compression module PRO<sub>2</sub>XY® VAC 40



PRO <sub>2</sub> XY® VAC 12 bar	PRO <sub>2</sub> XY® VAC 27 - 93/95 %		PRO <sub>2</sub> XY® VAC 40 - 93 %		PRO <sub>2</sub> XY® VAC 40 - 95 %	
	Dimensions (mm)	Weight (kg)	Dimensions (mm)	Weight (kg)	Dimensions (mm)	Weight (kg)
5 Compression module	1279 x 1060 x 1273	280	1279 x 1115 x 1620	410	1279 x 1060 x 1620	330
4 RT tank	1200 x 880 x 2380 1000 l	220	1490 x 1210 x 2520 2000 l	395	1490 x 1210 x 2520 2000 l	395
6 RP O <sub>2</sub> tank	1000 x 880 x 2380 1000 l	220	1400 x 1210 x 2520 2000 l	395	1400 x 1210 x 2520 2000 l	395
7 R 10 tank	970 x 880 x 2380 1000 l	220	1410 x 1210 x 2520 2000 l	395	1410 x 1210 x 2520 2000 l	395

## Plant references

PRO <sub>2</sub> XY® VAC - 12 bar		PRO <sub>2</sub> XY® VAC 27		PRO <sub>2</sub> XY® VAC 40	
		93 %	95 %	93 %	95 %
PRO <sub>2</sub> XY® VAC	Single line	924980	924678	924984	924686
Pressure release line	Simple	824214	824214	824214	824214
PRO <sub>2</sub> XY® VAC	Multi-line A	924981	924679	924985	924687
PRO <sub>2</sub> XY® VAC	Multi-line B	924982	924680	924986	924688
PRO <sub>2</sub> XY® VAC	Multi-line C	924983	924681	924987	924689
Pressure release line	Duplex	824215	824215	824215	824215

## Accessories and option references

O <sub>2</sub> paramagnetic analyzer	manual calibration	724565	O <sub>2</sub> ambient analyzer	622709
O <sub>2</sub> paramagnetic analyzer	automatic calibration	724566	O <sub>2</sub> hygrometry monitoring kit	823735
Redundancy box for O <sub>2</sub> analyzer (EN62304)		724564	CO KIT analyzer	724912
Redundancy box for HP (EN62304)		724752	CO / CO <sub>2</sub> KIT analyzer	724914
2 <sup>nd</sup> O <sub>2</sub> paramagnetic analyzer	manual calibration	724627	O <sub>2</sub> flowmeter G1/2"	624683
2 <sup>nd</sup> O <sub>2</sub> paramagnetic analyzer	automatic calibration	724628	Power supply 24VCC	625004
O <sub>2</sub> probe analyzer kit	zirconium	625616	Energy monitoring - 100A	625090

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