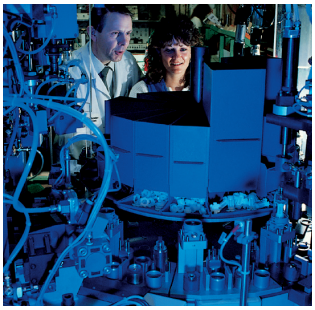



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climate control
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filtration
fluid & gas handling
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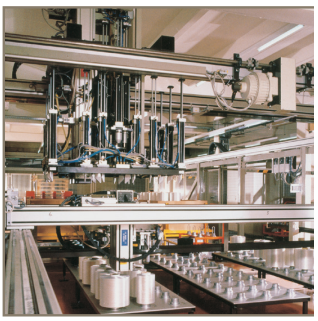
pneumatics
process control
sealing & shielding





P3XJ Series
G1/2" Air Preparation System

Catalogue no. PDE2640TCUK April 2021



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P3X Series Membrane Dryers

The Problem

Compressed air is an essential power source that is widely used throughout industry. This safe, powerful and reliable utility can be the most important part of your production process.

However, your compressed air will contain water, dirt, wear particles and even degraded lubricating oil which all mix together to form an unwanted condensate. This condensate often acidic, rapidly wears tools and pneumatic machinery, blocks valves and orifices causing high maintenance and costly air leaks. It also corrodes piping systems and can bring your production process to an extermely expensive standstill.

The use of high efficiency compressed air filters fitted with condensate drains will remove the oil, water and dirt particles to eliminate the abrasive sludge in the compressed air system.

In many cases this action alone is not enough, as modern production systems and processes demand an even higher level of air quality. Where required " point of use" membrane air dryers can provide the correct air quality, without the need for drying the complete compressed air installation, which can be both costly and totally unnecessary.

The Efficient Solution

The Parker P3X Series membrane air dryers employ an advanced molecular membrane technology that dries the compressed air and lowers the pressure dewpoint (PDP). The compact space saving design offer the user uncomprimised performance from a dedicated "point-of-use" air dryer. It is easy to install and will transform an ordinary process into a highly reliable and efficient production operation.

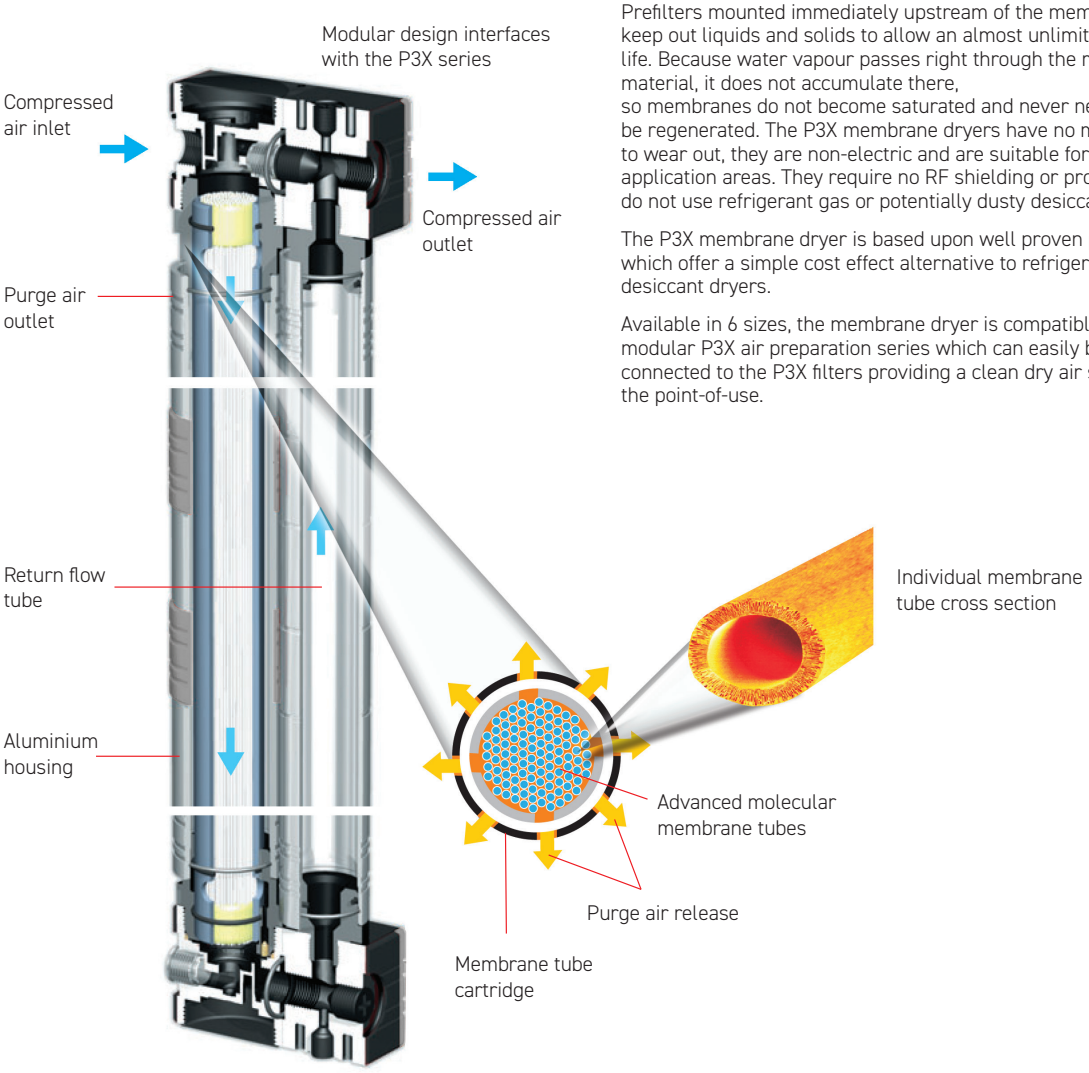
The membrane material is formed into bundles of individual fibres retained in a cartridge. Water vapour escapes through the walls of the fibre to a sweep chamber from where it is continuously vented to atmosphere as a gas. A fraction of the dried air is routed through the sweep chamber to continuously purge and exhaust moisture vapour.

The P3X series membrane dryers can be used for many years to dry air continuously. They instantly respond to any change in inlet conditions. The P3X dryers perform at temperatures between 2° and 60° C (ambient or inlet) and handle pressure from 5 bar to 16 bar. The inlet flow rate and pressure determine the outlet dew point suppression. In other words, membrane dryers deliver a constant level of drying protection that follow the rise or fall of the inlet dew point temperature.

Prefilters mounted immediately upstream of the membrane dryer keep out liquids and solids to allow an almost unlimited service life. Because water vapour passes right through the membrane material, it does not accumulate there, so membranes do not become saturated and never need to be regenerated. The P3X membrane dryers have no moving parts to wear out, they are non-electric and are suitable for hazardous application areas. They require no RF shielding or protection, they do not use refrigerant gas or potentially dusty desiccants.

The P3X membrane dryer is based upon well proven principles which offer a simple cost effect alternative to refrigeration and desiccant dryers.

Available in 6 sizes, the membrane dryer is compatible with the modular P3X air preparation series which can easily be connected to the P3X filters providing a clean dry air system at the point-of-use.



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Advantages of the P3X Series Membrane Dryers

Dried compressed air is immediate

No electrical connection necessary

Suitable for hazardous areas

No CFC's/FC's

Compatible with the P3X series modular air preparation series

Low pressure drop

No moving parts

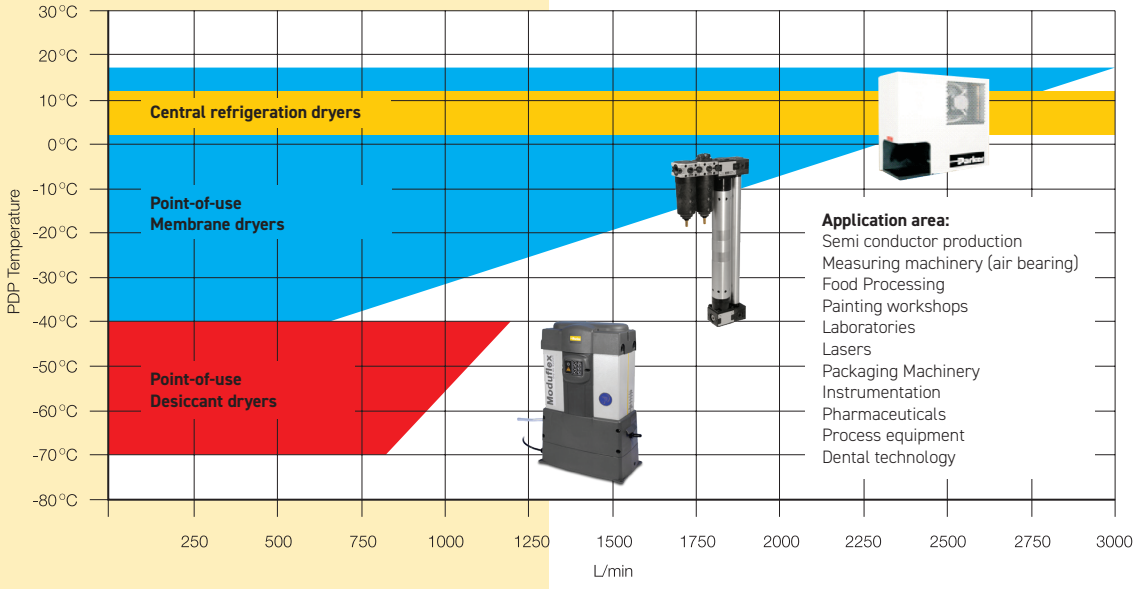
No drying medium required

Low purge air usage

Low operating costs



Dryer types with PDP reduction & flow values



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P3X Series Membrane Dryers

- Removes water vapour & lowers the PDP
- Compact design
- No electrical connections necessary
- Suitable for hazardous environments
- No moving parts
- Maintenance & wear free
- No change in air consumption
- Low pressure drop less than 0.1 bar
- Minimal purge air consumption
- Modular design - compatible with the P3X air prep series



Membrane dryer

Port size	Size	Description	Order Code
G1/2	10	Membrane dryer with return tube	**P3XJA14CA1N**
G1/2	15	Membrane dryer with return tube	**P3XJA14CB1N**
G1/2	20	Membrane dryer with return tube	**P3XJA14CC1N**
G1/2	25	Membrane dryer with return tube	**P3XJA14CD1N**
G1/2	35	Membrane dryer serial type	**P3XJA14CE1N**
G1/2	50	Membrane dryer serial type	**P3XJA14CF1N**



Wall mounting bracket kit

Order Code	
P3XKA00MWD	Top & bottom wall mounting bracket

Note:

For optimum system performance and maintenance free conditions, Parker recommend the dryer is preceeded with a 5 micron and 0.01 coalescer filter from the P3X series.

Complete Filter / Dryer System combinations available on request



F + Fc + MD



F + Fc + MD + R



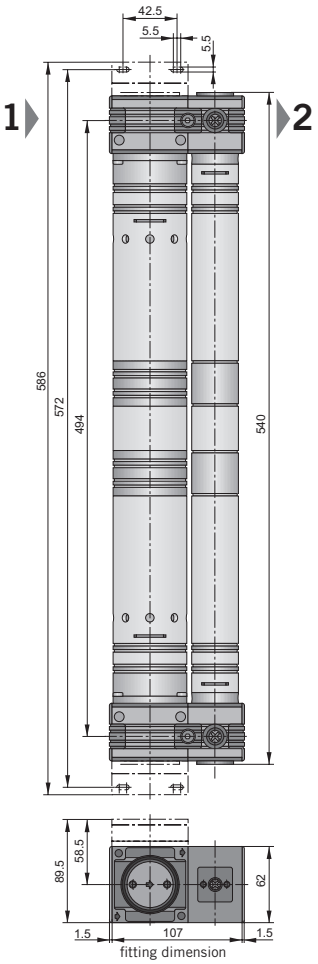
F + Fc + MD + R + Fa

P3X Series Membrane Dryers

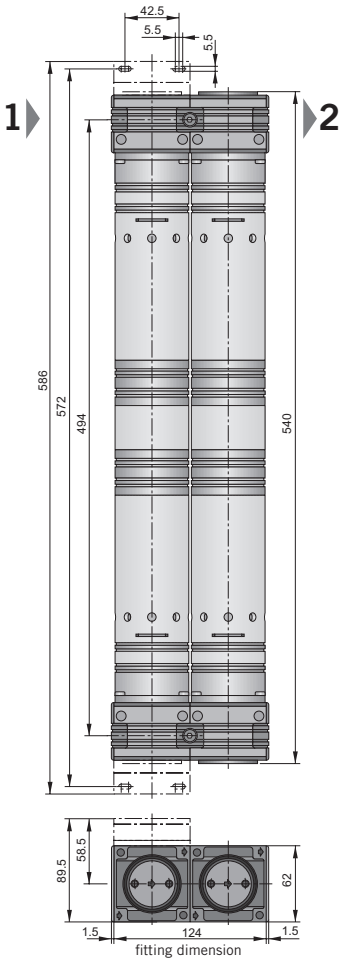
Technical Information

			Size 10	Size 15	Size 20	Size 25	Size 35	Size 50
Port size			G1/2	G1/2	G1/2	G1/2	G1/2	G1/2
Medium and	ϑ_{min}	°C	+2	+2	+2	+2	+2	+2
Ambient temperature	ϑ_{min}	°C	+60	+60	+60	+60	+60	+60
Weight (kg)			3.3	3.3	3.3	3.3	4.2	4.2
Operating pressure range	P_{min}	bar	5	5	5	5	5	5
Input	P_{max}	bar	16	16	16	16	16	16
Maximum flow	Q_{max}	l/min	560	840	1120	1400	1960	2800
		m^3/h	33.6	50.4	67.2	84	117.5	168
Nominal flow	Q_{max}	l/min	167	250	333	417	583	833
		m^3/h	10	15	20	25	35	50
Purging air requirement		%	ca. 10	ca. 10	ca. 10	ca. 10	ca. 10	ca. 10
Pressured drop	Δp	bar	0.02-0.05	0.02-0.05	0.02-0.05	0.02-0.05	0.06	0.12

P3XJA14CA1N
P3XJA14CB1N
P3XJA14CC1N
P3XJA14CD1N



P3XJA14CE1N
P3XJA14CF1N

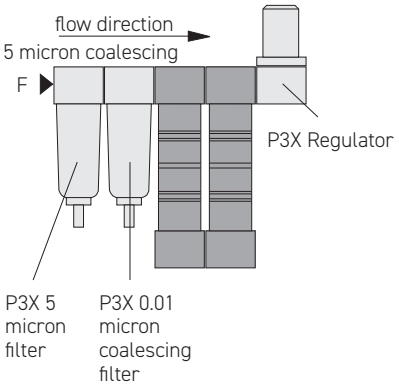


Dimensions in mm

- Compact
- Immediate dry air delivery
- No electric power supply required
- Minimal purge air consumption
- Low pressure drop
- No change in air composition

Mounting Instructions

Recommended mounting sequence



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Selection Criteria

To correctly select the dryer best suited for your application, the following information is required to ensure optimum performance and trouble free operation.

- Maximum inlet pressure dew point (^{o}C)
- Outlet PDP (^{o}C)
- Working pressure (bar)
- Maximum inlet flow rate (m^3/h)

Conversion factor for calculation of corrected flow rate

Operating pressure range p (bar)	5	6	7	8	9	10	11	12	13	14	15	16
Conversion factor f_p	0.57	0.78	1.0	1.21	1.42	1.64	1.85	2.06	2.28	2.49	2.70	2.92

Working Example:

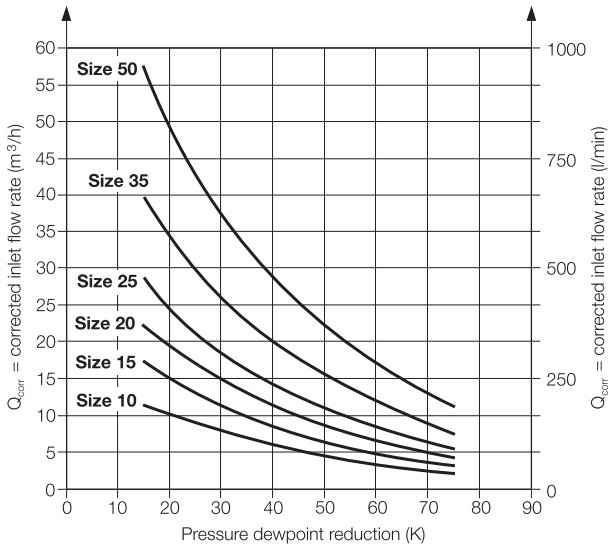
Selecting a dryer with an inlet pressure dew point of 35°C, a PDP reduction of 35K with a working / operating pressure of 6 bar and an inlet flow of 11 m^3/h.

Step 1
From the correction factor table select the required pressure (6 bar) and read below the corrected factor value (0.78)

Step 2
To adjust the flow for your application, divide the required flow by the 0.78 correction factor

$$\text{Sizing capacity} = \frac{\text{Actual flow}}{\text{Correction factor}} \qquad \frac{11\ m^3/h}{0.78} \qquad = \qquad 14.1\ m^3/h$$

Step 3
Plot the values on the selection graph (below). Where the dew point reduction value of 35K intersects with the corrected flow value of 14.1 m^3/h, select the dryer flow curve which is equal or above the intersection point. For example: the optimum dryer would be **size 25 (P3XJA14CD1N)**



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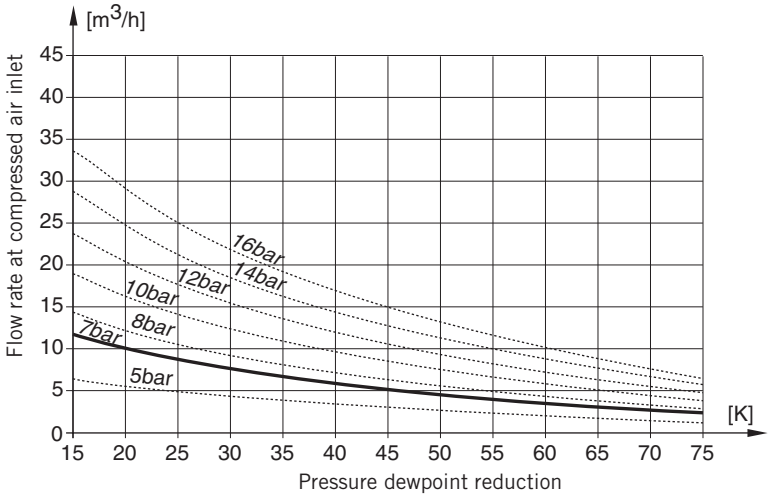
Membrane dryers

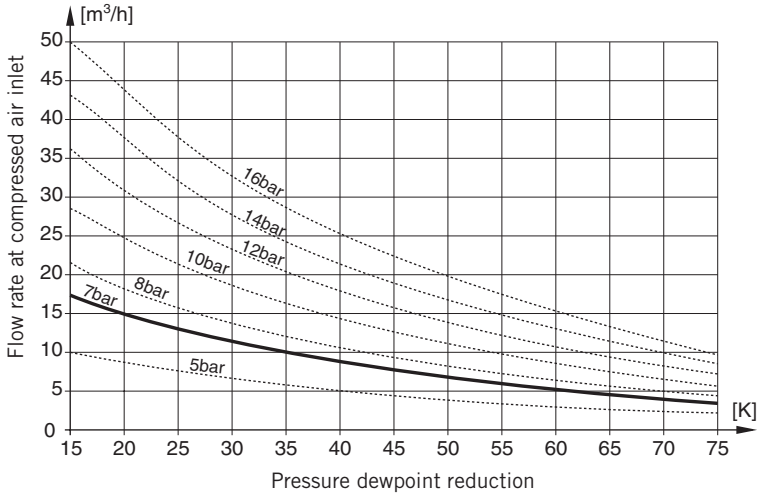
P3X Series - G1/2

Flow rate in relation to pressure dewpoint reduction and inlet pressure.

P3XJA14CA1N (Size 10)



P3XJA14CB1N (Size 15)



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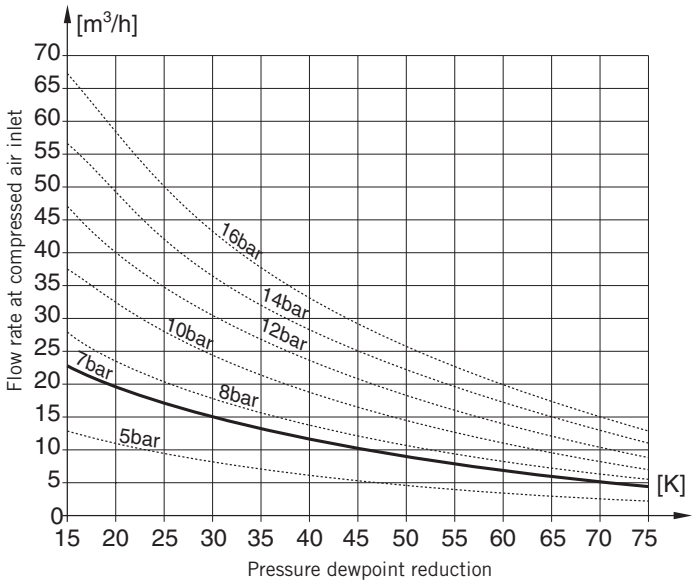
Membrane dryers

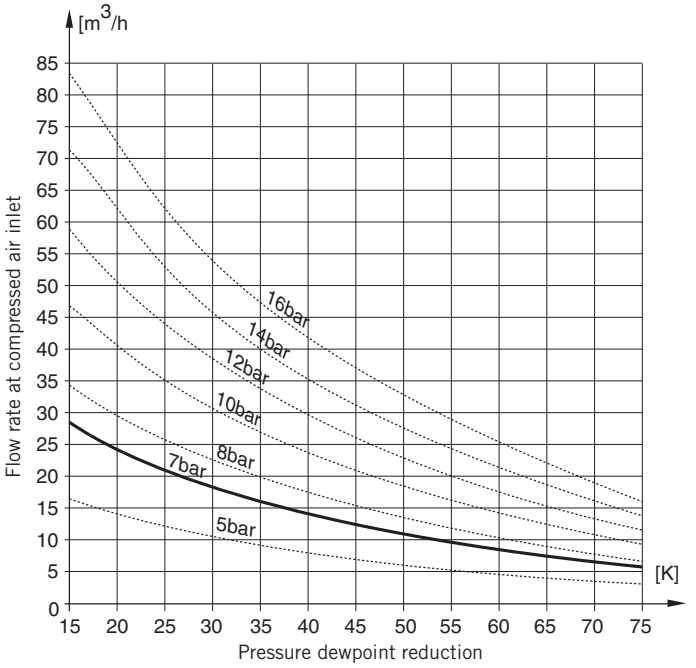
P3X Series - G1/2

Flow rate in relation to pressure dewpoint reduction and inlet pressure.

P3XJA14CC1N (Size 20)



P3XJA14CD1N (Size 25)



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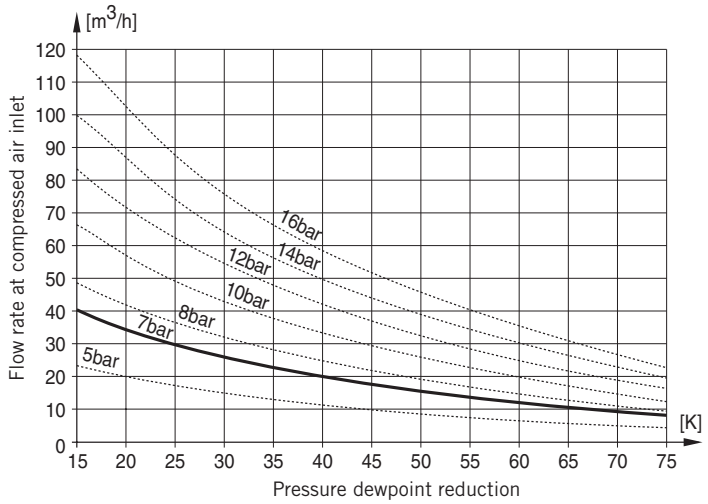
Membrane dryers

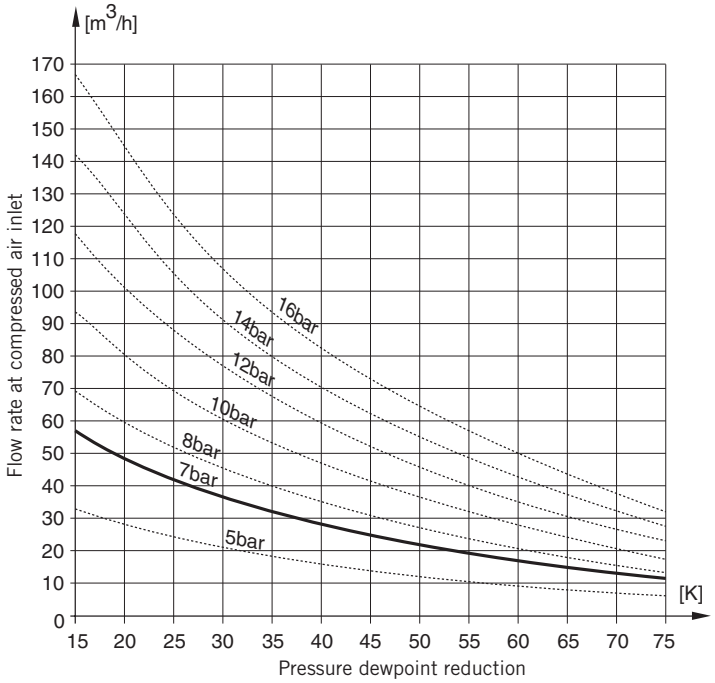
P3X Series - G1/2

Flow rate in relation to pressure dewpoint reduction and inlet pressure.

P3XJA14CE1N (Size 35)



P3XJA14CF1N (Size 50)



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