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pneumatics
process control
sealing & shielding



P3X Series Membrane dryers

Catalogue no. PDE2640TCUK - April 2010



ENGINEERING YOUR SUCCESS.



WARNING

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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 extremely 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 uncompromised 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.

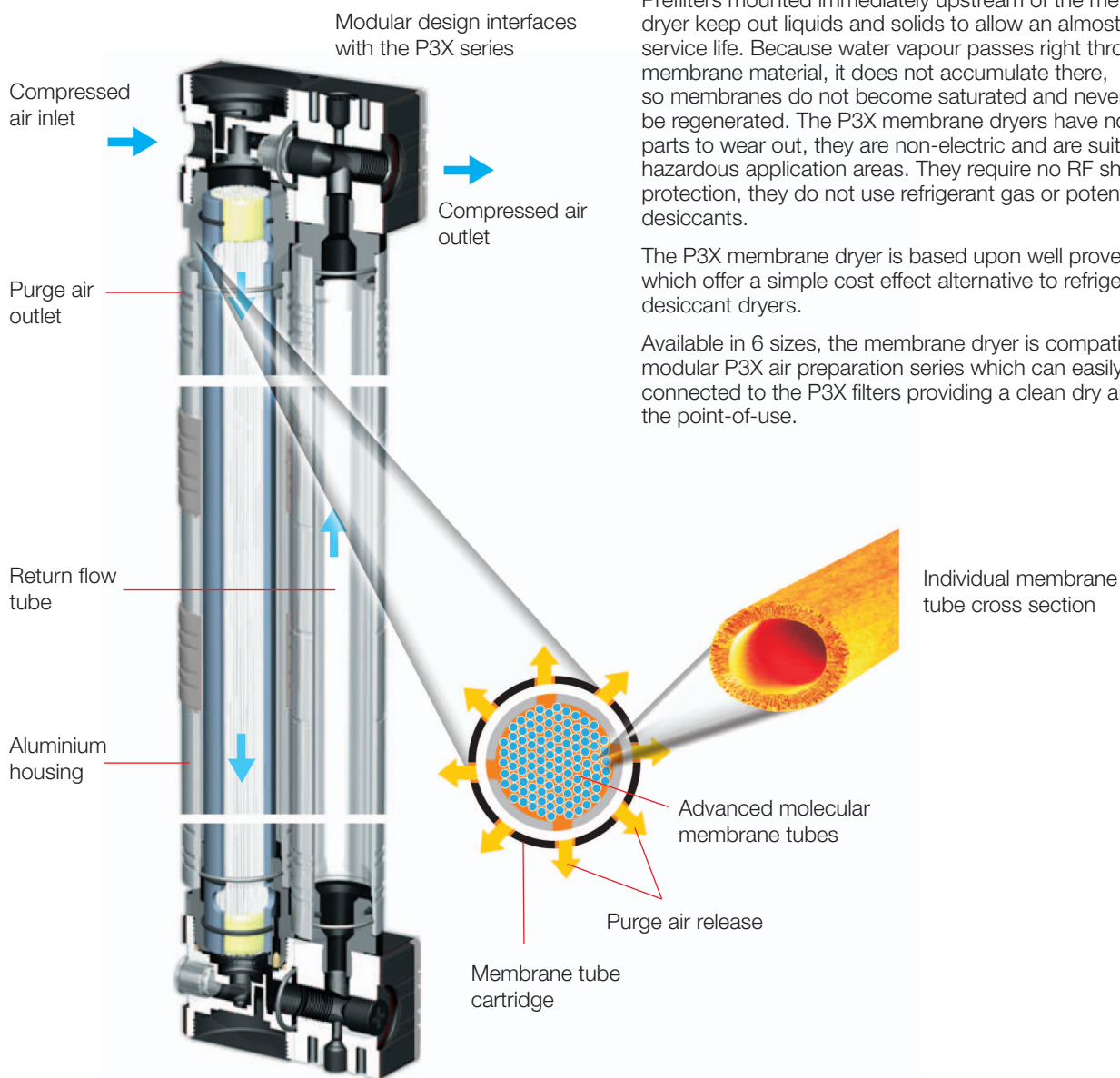
The membrane material is formed into bundles of individual fibres retained in a cartridge. Water vapour escapes through the walls of the fibre to a sweep chamber from where it is continuously vented to atmosphere as a gas. A fraction of the dried air is routed through the sweep chamber to continuously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



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

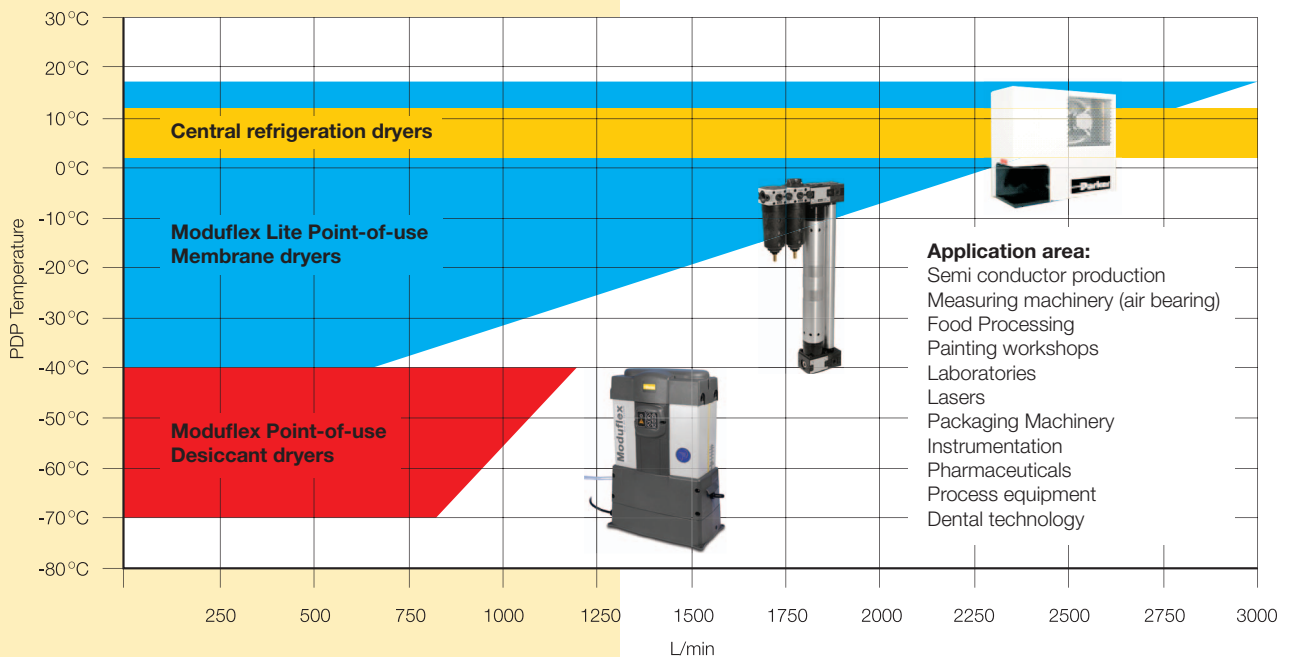
No drying medium required

Low purge air usage

Low operating costs



Dryer types with PDP reduction & flow values



PDE2640TCUK
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



Note: For NPT threaded connections replace the 6th digit from **1** to **9** i.e. P3XJA**9**4CA1N

Wall mounting bracket kit

Order Code	Description
P3XKA00MWD	Top & bottom wall mounting bracket

Note:

For optimum system performance and maintenance free conditions, Parker recommend the dryer is preceded 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



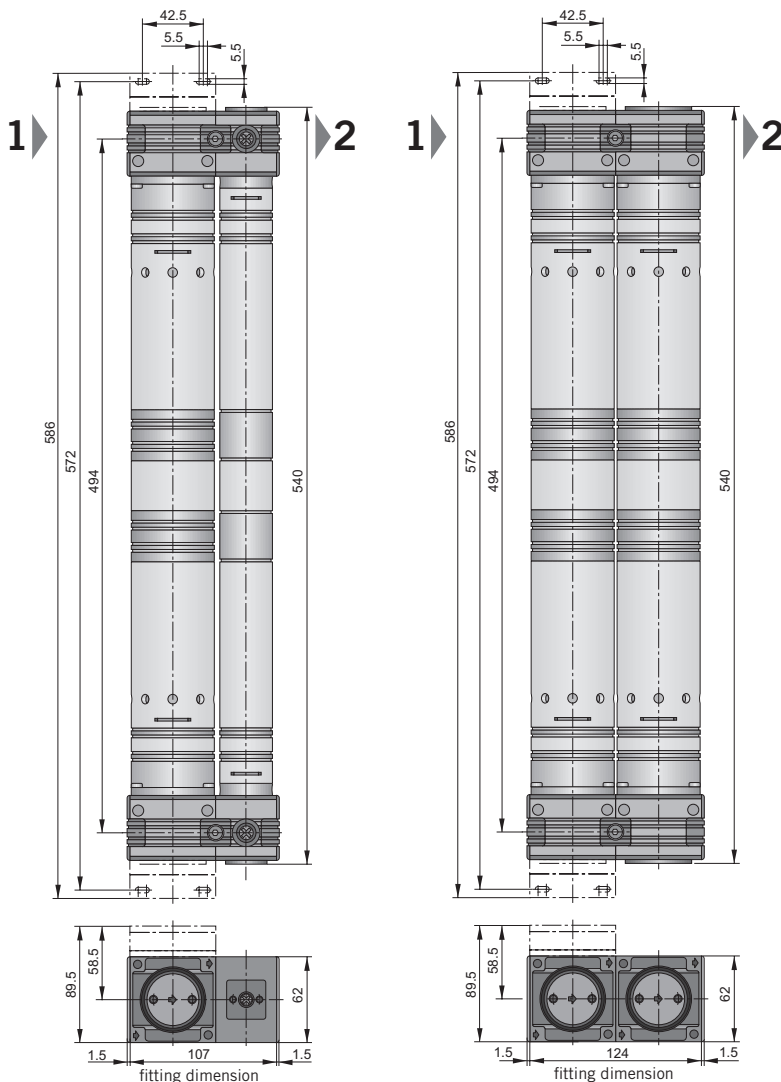
F + Fc + MD + R + Fa

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 Ambient temperature	ϑ_{min} °C	+2	+2	+2	+2	+2	+2
	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
	Q_{max} 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
	Q_{max} 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

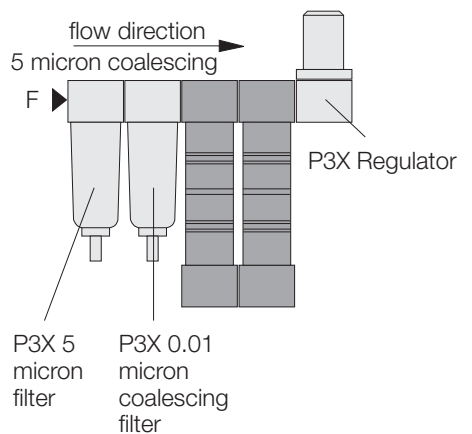
P3XJA14CE1N
P3XJA14CF1N



- 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



Dimensions in mm

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 (°C)
- Outlet PDP (°C)
- Working pressure (bar)
- Maximum inlet flow rate (m³/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 m³/h.

Step 1

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

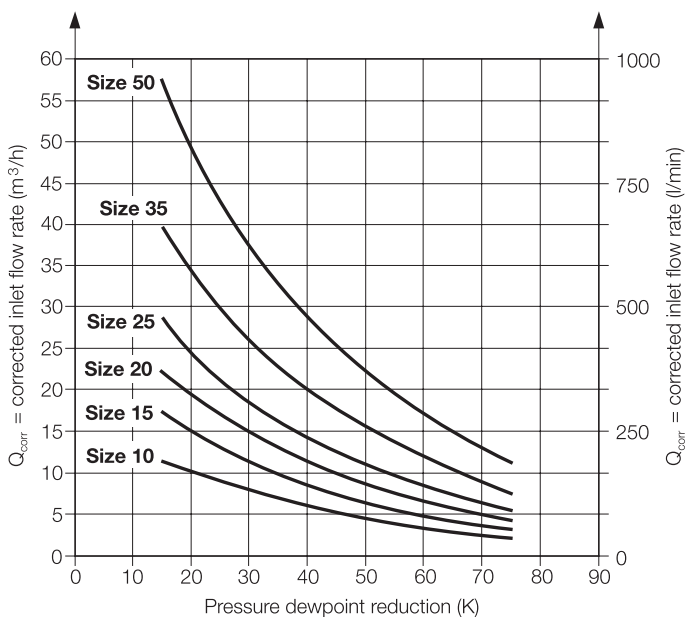
Step 2

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

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

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 m³/h, select the dryer flow curve which is equal or above the intersection point. For example: the optimum dryer would be **size 25 (P3XJA14CD1N)**



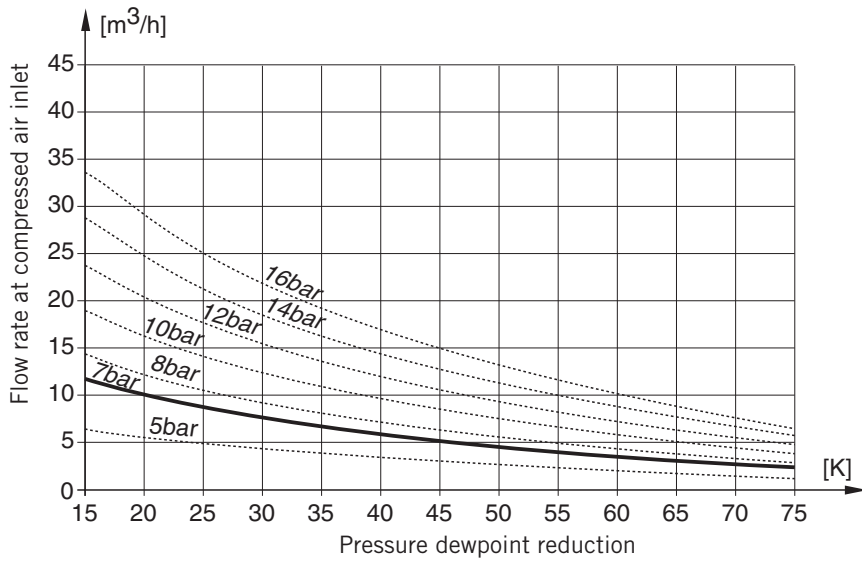
P3X Series Membrane Dryers

Membrane dryers

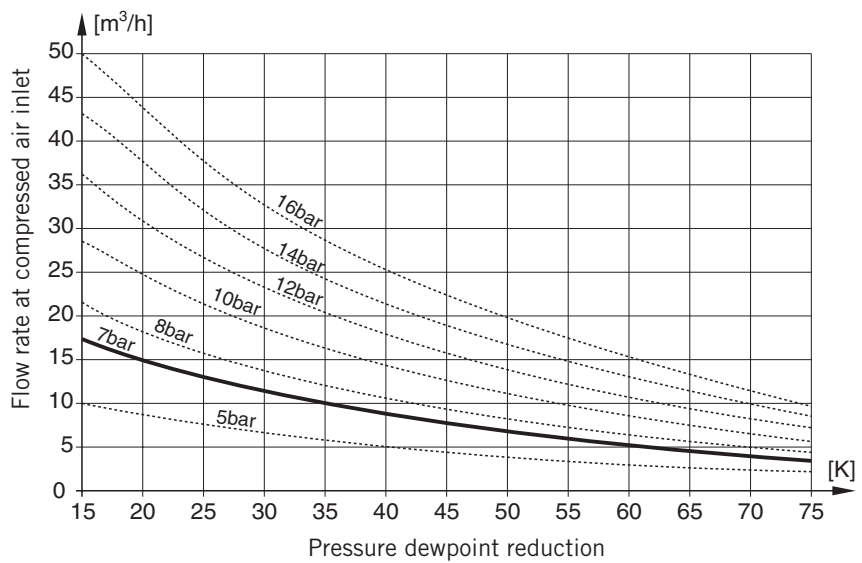
P3X Series - G1/2

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

P3XJA14CA1N (Size 10)



P3XJA14CB1N (Size 15)

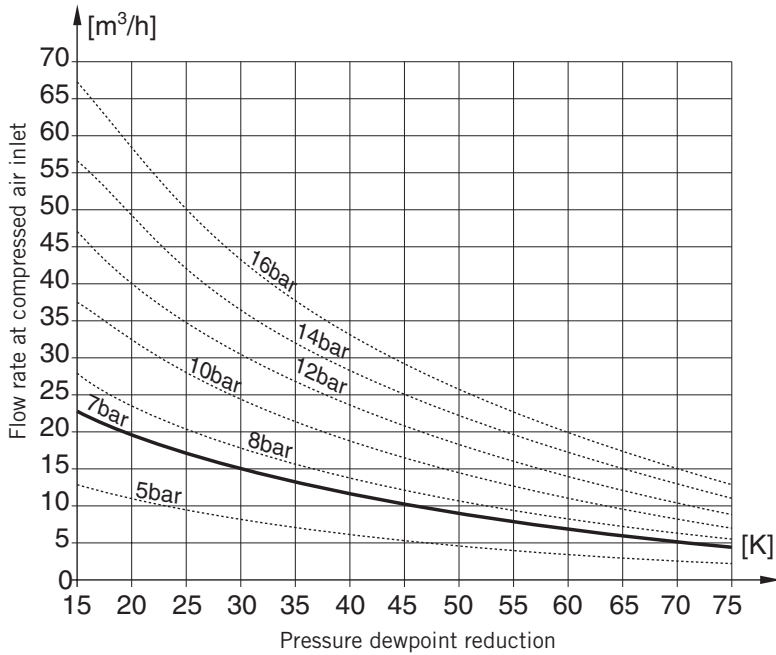


Membrane dryers

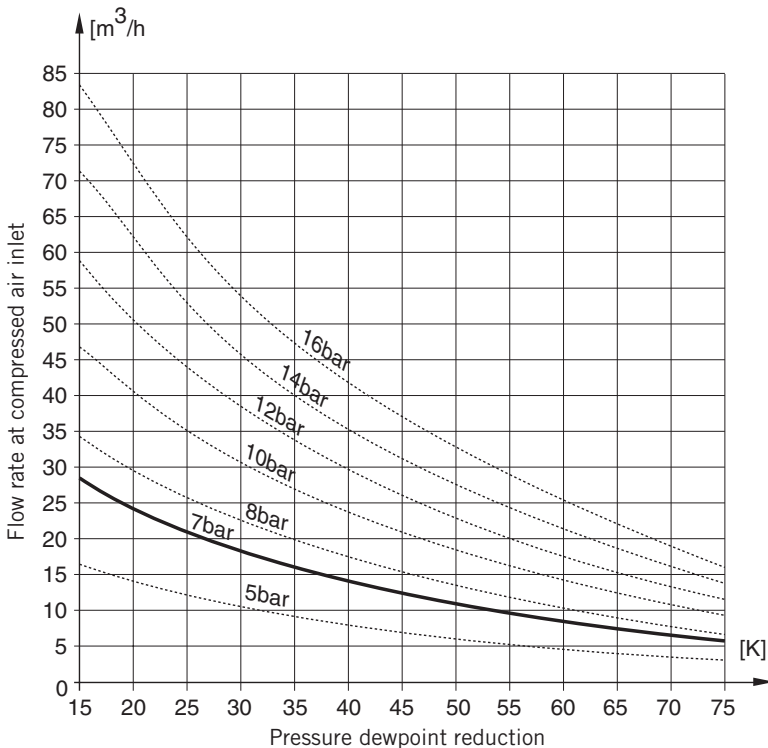
P3X Series - G1/2

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

P3XJA14CC1N (Size 20)



P3XJA14CD1N (Size 25)



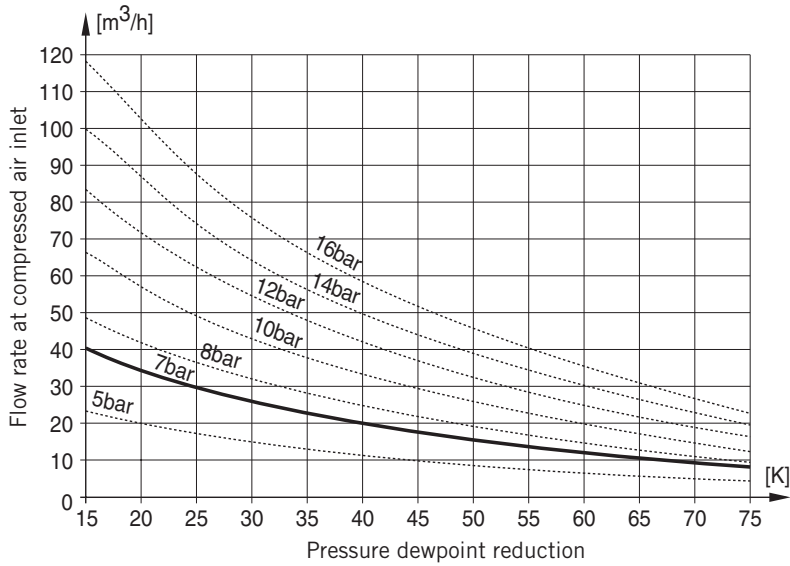
P3X Series Membrane Dryers

Membrane dryers

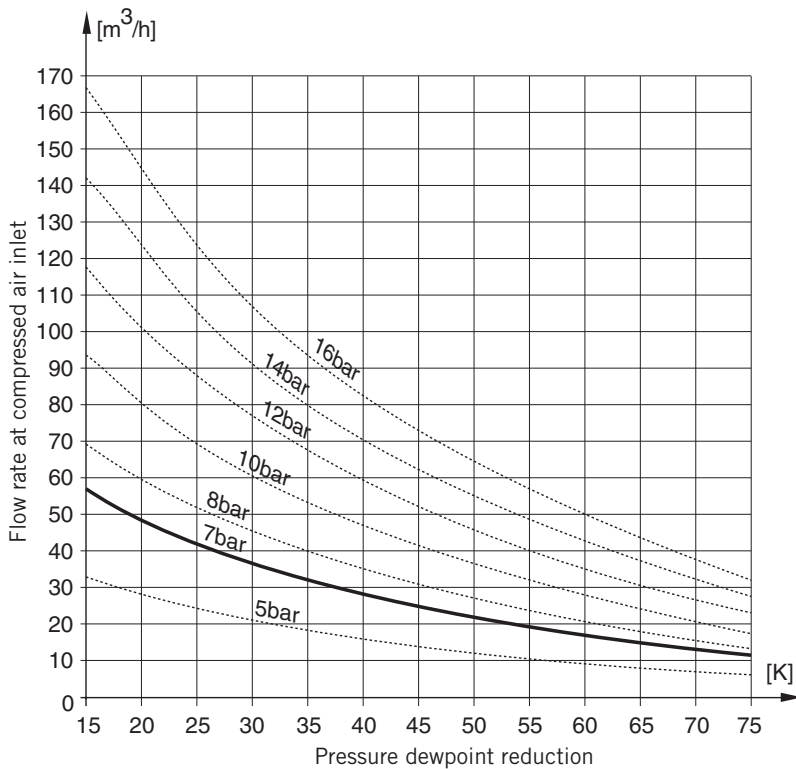
P3X Series - G1/2

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

P3XJA14CE1N (Size 35)



P3XJA14CF1N (Size 50)



P3X - Moduflex Lite Air Preparation System

Nano Mist

Simple. Convincing in the Details.

**There are innovations that bring selective improvements.
And then there are real innovations. Innovations that set new standards.
Like the new Parker Moduflex Lite series.**

The Moduflex Lite FRL system is constructed from ultra light weigh technopolymers instead of the traditional aluminium or zinc die cast, this means that is up to 45% lighter than conventional units. This non-metal construction also means that the Moduflex Lite is corrosion free enabling it to be used in harsh industrial environments where anti freeze or aggressive synthetic oils are present.

The use of technopolymers in the design of Moduflex Lite has facilitated a universal body design, this has resulted in reducing the number of variants required to cover the full spectrum of applications. This can dramatically lower logistic costs and simplify stock holding for customers making the Moduflex Lite a very cost effective solution.

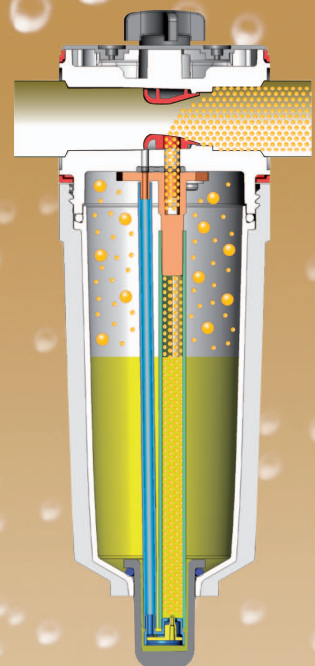


New Nano Mist Technology, New Lubricator Concept. Self-Adjusting.

With conventional lubricators, only the oil volume per time unit can be adjusted. If the demand changes, the quantity dispensed still remains constant.

The Moduflex Lite lubricator concept sets new benchmarks here. For the first time, the oil volume is automatically adjusted to the flow rate. This ensures that there is neither too little nor too much oil in the system, which leads to clear economic and ecological advantages. In addition, with conventional systems, the distance between the lubricator and the equipment has to be less than 8 meters. With larger distances, the dispensed oil is deposited as a wall flow.

The new lubricator principle of the Moduflex Lite allows for distances of up to 40 meters. This opens up new scope for the design of even more efficient production systems.



Parker Worldwide

AE – UAE, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

CH – Switzerland, Etoy
Tel: +41 (0) 21 821 02 30
parker.switzerland@parker.com

CL – Chile, Santiago
Tel: +56 2 623 1216

CN – China, Shanghai
Tel: +86 21 2899 5000

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HK – Hong Kong
Tel: +852 2428 8008

HU – Hungary, Budapest
Tel: +36 1 220 4155
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IN – India, Mumbai
Tel: +91 22 6513 7081-85

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

JP – Japan, Tokyo
Tel: +(81) 3 6408 3901

KR – South Korea, Seoul
Tel: +82 2 559 0400

KZ – Kazakhstan, Almaty
Tel: +7 7272 505 800
parker.easteurope@parker.com

LV – Latvia, Riga
Tel: +371 6 745 2601
parker.latvia@parker.com

MX – Mexico, Apodaca
Tel: +52 81 8156 6000

MY – Malaysia, Shah Alam
Tel: +60 3 7849 0800

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Ski
Tel: +47 64 91 10 00
parker.norway@parker.com

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SG – Singapore
Tel: +65 6887 6300

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TH – Thailand, Bangkok
Tel: +662 717 8140

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

UA – Ukraine, Kiev
Tel: +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

US – USA, Cleveland
Tel: +1 216 896 3000

VE – Venezuela, Caracas
Tel: +58 212 238 5422

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

European Product Information Centre
Free phone: 00 800 27 27 5374
(from AT, BE, CH, CZ, DE, DK, EE, ES, FI,
FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU,
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