



# WALKER FILTRATION

The ultimate filtration & drying technology

## Pro Dry

Heatless desiccant compressed air dryers





## Features

Each Pro Dry unit has been designed to suit a multitude of requirements and is suitable for installation in many countries.

The Pro Dry range adheres to our innovative principles and provides the most essential features needed for the most effective solutions.



- Suitable for worldwide installation.
- Approved to International Standards including PED & European directives.
- Multi voltage capabilities.
- Extruded aluminium towers fully painted for corrosion protection.
- Removable front panel allows for easy access for servicing.
- Standard controller incorporates an energy management system as standard.
- Intelligent electronic processor.
- Simple purge plug changeout, no need to dismantle units.
- Easy and efficient servicing.
- Spring loaded desiccant cartridges to avoid desiccant attrition.
- Desiccant cartridges ensure maintenance is trouble-free with minimum downtime.
- Internal silencer to reduce noise levels and ensure a smooth chamber depressurisation.
- Minimal serviceable spares.



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# Benefits



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**Economical to use** Walker Filtration's high performance dryers provide a host of financial benefits such as an integral electronic drain and service interval indication, all of which are included in the standard dryer package.

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**Clean & dry air** With XA grade 0.01 micron oil removal filtration (supplied as standard), an integral 1 micron dust filter and a choice of -40°C (-40°F) or -70°C (-100°F) pressure dewpoints, Pro Dry meets and exceeds the highest standards of purity as specified in ISO 8573-1.

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**Worldwide installation** The units can recognise any voltage between 100-240 VAC and also any voltage between 12 to 24 VDC, meaning the Pro Dry can be operated anywhere in the world. All dryers are built to be fully compliant with all approvals.

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**Intelligent processor** A feature of each unit is an intelligent in-built central processing unit (CPU). The CPU is serialised and is housed in an IP65 rated enclosure.

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**Energy management** Pro Dry offers a multitude of additional energy saving features, which allows the dryer to be linked with a compressor control system and reduces air consumption during periods of low demand.

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**Condensate management** Condensate management is essential to maximise dryer efficiency. Pro Dry is supplied with an integral electronic drain valve which is operated and controlled by the CPU. This drain valve opens at the end of every cycle when an indicator illuminates and the CPU checks for any sign of malfunction in the dryer. Operation of the unit is viewed by the diagnostic control panel located on the front of each unit.

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**Desiccant Cartridges** An improved desiccant cartridge design with integral handle facilitates a simple and clean change out procedure.

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# Operation

**Pro Dry is designed to provide a smooth, controlled, uninterrupted delivery of dry compressed air.**

Wet air passes through a pre-filter and travels down to the bottom valve assembly. The air is then fed through the bottom of the desiccant bed and moves through the high performance desiccant until it becomes dry. On exit from the desiccant cartridge, the air is passed through the outlet valve assembly.

During this process, the dryer control system cycles the process air between the two desiccant towers. While one chamber is on stream removing water vapour, the other is being carefully depressurised in preparation for regeneration. The desiccant bed is regenerated by expanding a small amount of dry process air, or purge air, through the saturated desiccant.

Purge air passes to atmosphere through the silencer, which is fitted to an exhaust valve. The chamber is then repressurised, with the control system assuring each chamber is at full operational pressure prior to changeover.

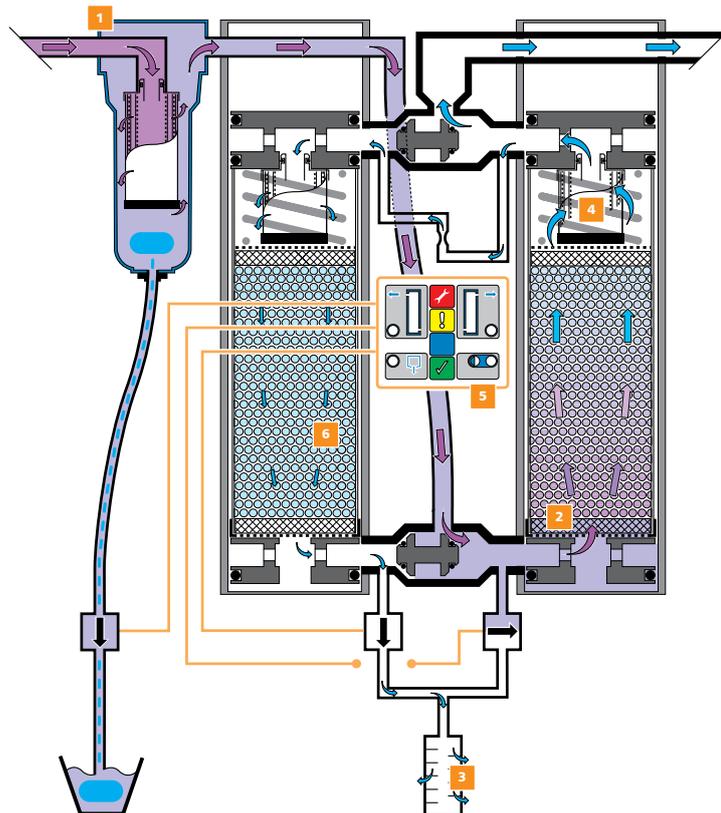
This ensures a reliable and efficient operation. The air stream is switched and the cycle repeats on a continuous basis.



**1** The XA grade pre-filter with electronic drain removes particulates and coalesced liquids from the air stream. Wet air passes through the filter down to the bottom valve assembly.

**2** The air is fed through the bottom of desiccant bed and moves through high performance desiccant until dry.

**3** Purge air passes to atmosphere through the silencer which is fitted to the exhaust valve.



**4** On exit from the desiccant cartridge the air passes through the integral 1 micron dust filter removing particulate in the air stream.

**5** The control system cycles the process air between the two desiccant towers.

**6** Whilst one chamber is on stream removing water vapour, the other is being regenerated.

# Medical & Breathing Air Packages



## Hospital and medical air

Hospitals around the world demand a clean, reliable, source of medical air which will deliver consistent pressure levels and flow rates. The medical air must be free from toxic contaminants, flammable or objectionable vapours, liquids and particulate debris. The air quality must conform to recognised international standards.

Both the medical dryer and the attached filtration have been designed and manufactured in accordance with the UK & International guidelines. Available in either simplex or duplex versions, the units currently utilise unique modular filters and desiccant drying processes to perform at its maximum capability.

Walker Filtration can offer custom designed medical packages for international markets. Our design engineers are able to offer support and technical consultation by combining our expert knowledge of filtration and drying products with our experience in liaising with OEM customers.

Hospital and medical air packages are bespoke, we work together with companies to meet the varying performance standards required. For more information please contact the Walker Filtration sales team.



## Breathing air packages

The Pro BA breathing air system uses a standard Pro Dry desiccant compressed air dryer, which is upgraded with Pure Flow replaceable cartridges.

These desiccant cartridges maintain normal ambient oxygen / nitrogen levels and remove water vapour. In addition, these units include a complete three stage filtration system consisting of a 1 micron pre-filter, 0.01 micron oil mist coalescer and an outlet filtration for removing odours, tastes and most crucially carbon monoxide.

At the heart of the unit is a fully functional electronic controller complete with an LED control panel, built in self monitoring diagnostics and energy management.

The Pro BA range has been designed and manufactured to exceed current legislation guidelines including ISO 8573:1, BS EN 529: 2005 and EN 12021 and therefore is suitable for worldwide installation.

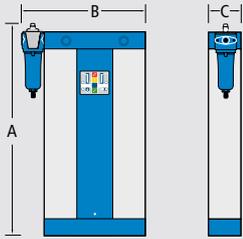
Exceptional design capabilities allow Walker Filtration to meet the highest demands, including those of OEM customers.



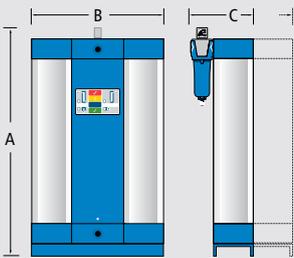


# Technical specification

dryer model	pipe size	inlet flow rate			dimensions (mm)			weight Kg	dryer configuration	filter model
		Nm <sup>3</sup> /h	SCFM	l/sec	A	B	C			
PD004	3/8	7	4	1.9	493	351	92	13	simplex	A038
PD006	3/8	10	6	2.8	552	351	92	14	simplex	A038
PD008	3/8	14	8	3.8	613	351	92	15	simplex	A038
PD010	3/8	17	10	4.7	682	351	92	17	simplex	A038
PD015	3/8	25	15	7.1	862	351	92	20	simplex	A038
PD025	3/8	42	25	11.8	1253	351	92	24	simplex	A038
PD035	3/8	59	35	16.5	1644	351	92	31	simplex	A038
PD045	3/4	76	45	21.2	837	520	264	54	simplex	A078
PD055	3/4	93	55	26.0	937	520	264	60	simplex	A078
PD065	3/4	110	65	30.7	1037	520	264	65	simplex	A078
PD085	1	144	85	40.0	1237	520	264	77	simplex	A108
PD105	1	178	105	49.6	1547	520	264	93	simplex	A108
PD135	1 1/4	229	135	63.7	1747	520	264	104	simplex	A128
PD175	1 1/4	297	175	82.6	2147	520	264	126	simplex	A128
PD215	1 1/2	365	215	101.5	1555	520	448	176	duplex	A158
PD275	1 1/2	467	275	129.8	1755	520	448	197	duplex	A158
PD365	1 1/2	620	365	172.3	2165	520	474	239	duplex	A159



PD004 to PD035



PD045 to PD365

Standard pressure dewpoint	-40°C	-40°F
Optional pressure dewpoint	-70°C	-94°F
Minimum working pressure	4 barg	58 psig
Maximum working pressure	16 barg	232 psig
Electronic control	100-240 VAC at 50-60Hz or 12VDC to 24VDC	
Minimum inlet temperature	1.5°C	34°F
Maximum inlet temperature	50°C	122°F
Minimum ambient temperature	5°C	41°F

## technical notes

1. Additional filtration, including a water separator, is required.
2. Pro Dry features easy removable desiccant cartridges with integral 1 micron dust filter.
3. For additional security, Walker Filtration recommends fitting an RX1 dust filter to the outlet.
4. All models are supplied together with an XA pre-filter (refer to separate price guide).
5. Approved to international standards including PED & European Directives.
6. Standard models operate at 7 barg; for other pressures, please specify at time of order.
7. PD215, PD275 and PD365 are duplex systems.

## correction factor

Operating pressure barg (psig)	4 (58)	5 (72)	6 (87)	7 (100)	8 (116)	9 (130)	10 (145)	11 (160)	12 (174)	13 (189)	14 (203)	15 (218)	16 (232)
<b>7 barg</b> Correction factor	0.62	0.75	0.87	1.00	1.12	1.25	1.37	1.5	1.62	1.75	1.87	2	2.12
Operating temperature °C (°F)	20 (68)	25 (77)	30 (86)	35 (95)	40 (104)	45 (113)	45 (113)	50 (122)					
Correction factor	1.07	1.06	1.04	1.00	0.88	1.37	0.78	0.55					
Dewpoint °C (°F)	-40 (-40)	-70 (-94)											
Correction factor	1	0.7											

# Selection



## Selection and ordering information

To select the Pro Dry suitable for your application, the following information is required: -

Minimum inlet pressure	Maximum inlet flow
Maximum inlet temperature	Required dewpoint

With the above information, follow the selection example below: -

Compressor outlet pressure @ 7 barg (100 psig) and dryer inlet flow rate @ 41 scfm (70 Nm <sup>3</sup> /h - 19 l/s)	
Dryer inlet pressure, after pipework, valves, receiver and filtration @ 6.3 barg (91 psig)	
Dryer inlet temperature	25°C (77°F)
Outlet dewpoint	-70°C (-100°F)
Pressure correction factor (PCF)	0.9
Temperature correction factor (TCF)	1.06
Dew point correction factor (DCF)	0.7

$$\text{Corrected dryer flow rate} = \frac{\text{Compressor flow rate}}{\text{PCF} \times \text{TCF} \times \text{DCF}} = \frac{41}{0.9 \times 1.06 \times 0.7} = 61 \text{ scfm (104 Nm}^3\text{/h - 29 l/s)}$$

As the above dryer sizing table, the correct dryer for this application, with a corrected flow rate of 61 scfm (104 Nm<sup>3</sup>/h - 29 l/s) is a PD065.

## Service kits

dryer model	silencer kit	cartridge service kit	valve service kit
PD004	PD1SK01	PDC004-12000	VSKS01
PD006	PD1SK02	PDC006-12000	VSKS01
PD008	PD1SK02	PDC008-12000	VSKS01
PD010	PD1SK02	PDC010-12000	VSKS01
PD015	PD1SK02	PDC015-12000	VSKS01
PD025	PD1SK02	PDC025-12000	VSKS01
PD035	PD1SK02	PDC035-12000	VSKS01
PD044SFD	PD1SK03	PDC044-12000	VSKD01
PD066SFD	PD1SK03	PDC066-12000	VSKD01
PD045	PD2SK01	PDC045AL-12000	PDVSKS01
PD055	PD2SK01	PDC055AL-12000	PDVSKS01
PD065	PD2SK01	PDC065AL-12000	PDVSKS01
PD085	PD2SK01	PDC085AL-12000	PDVSKS01
PD105	PD2SK02	PDC105AL-12000	PDVSKS01
PD135	PD2SK02	PDC135AL-12000	PDVSKS01
PD175	PD2SK02	PDC175AL-12000	PDVSKS01
PD215	PD2SK03	PDC215AL-12000	PDVSKD01
PD275	PD2SK03	PDC275AL-12000	PDVSKD01
PD365	PD2SK03	PDC365AL-12000	PDVSKD01

### service notes

1. Silencer service kit is required every 6,000 hours (1 year).
2. Cartridge service kit is required every 12,000 hours (2 years).
3. Valve service kit is required every 24,000 hours (4 years).
4. PD004-PD066SFD utilise plastic desiccant cartridges, PD045-PD365 utilise aluminium desiccant cartridges.



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