28+ YEARS OF EXCELLENCE

summits
Enabling Innovation. Enhancing Lives.






| Grade | Rating |
|---|---|
| P | 5µ |
| X | 1µ |
| Y | 0.01µ |
| A | 0.003mg/m3 |

NEW DIMENSIONS SOLUTIONS

# Puro

## The compressed air filters

- Superior media uniformity guarantees the best filtration performance
- Flow optimized diffuser avoids premature clogging
- Low pressure-drop
- High dirt holding capacity

ACCREDITED Management System Certification MSCB-119

ISO 9001: 2015 ISO 14001:2015 ISO 45001:2018 Cert. No.: 785966-754410-770689

ASME DOSH CE 1282

## Why Compressed air Filters

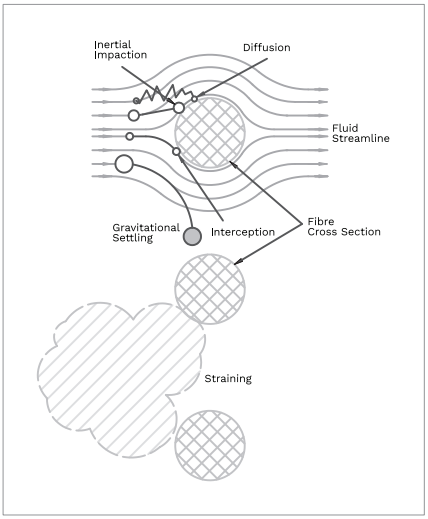
**The estimated amount of suspended dust in our atmosphere at any given point of time is approximately 26million tons. 80% of these particles are smaller than two microns in size. These dust particles along with moisture and oil present in atmospheric air in the form of vapour and aerosol, pose significant challenge to effective utilization of compressed air. These contaminants added with further substances originating from the compressor, pipelines and receivers further affect the quality of air. This creates an abrasive mixture which causes damage to machineries, tools and the end product. Thus, filtering compressed air to the required purity is essential for any industrial process to maintain uninterrupted production & achieve improved productivity.**

**Puro series filters in combination with the necessary dryer treat the compressed air to meet the stringent requirement of today's high productive critical industrial processes and the requirements stipulated in ISO 8573-1:2010.**

## Design Compressed air System (CAS) with Puro series filters

Contaminants present in compressed air can be grouped into 8 different categories which can be removed by combination of different purification techniques. Below table gives a brief idea about different type of contaminants and their purification techniques.

| Purification techniques | Contaminants | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Particulates | | Water | | | Oil | | |
| | Atmospheric dust, Rust, Pipe scales | Micro-organisms | Liquid water | Water aerosols | Water vapour | Liquid Oil | Oil aerosols | Oil vapour |
| Water Separator | | | √ | | | √ | | |
| Coalescing filter | √ | √ | | | | | √ | |
| Adsorption filter | | | | | | | | √ |
| Dryer | | | | | √ | | | |
| Sterile filter | | √ | | | | | | |




## Filtration Mechanism of Coalescing filter

Particle capturing mechanism of Coalescing filters is characterised by depth filtration mechanism including gravitational settling, inertial impaction, direct interception, and diffusion interactions.

Coalescing is a technique in which two or more liquid/oil droplets come into contact with each other and become larger droplets. Fine fibrils of filter media aids in breaking surface tensions of each fine droplets and causes to become larger single droplets.

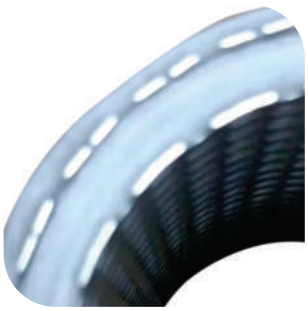
When this larger oil droplets reach a critical mass, gravitational force on these droplets surpasses the drag force. Thus, the droplets will gravitate to bottom of the media and eventually drain out.



**Grade: P**
Rating: 5 micron
**Single layer, Pleated**



**Grade: X**
Rating: 1 micron
**Double layer, Pleated**



**Grade: Y**
Rating: 0.01 micron
**Multi layer, Wound**



**Grade: A**
Rating: 0.003mg/m3
**Multi layer, Wound**

| Element specification | | | | | |
|---|---|---|---|---|---|
| **Description** | **UOM** | **Element grade** | | | |
| Element grade | -- | P | X | Y | A |
| Material | | Borosilicate glass | | | Carbon |
| Particle removal | Micron | 5 | 1 | 0.01 | 0.01 |
| Efficiency | % | 99.99 | | | |
| Max. Oil carryover @ 20°C | mg/m3 | 5 | 0.5 | 0.01 | 0.003 |
| ISO 8573, Table 2 | Class | 3 | 2 | 1 | 1 |
| ISO 8573, Table 5 | Class | 4 | 3 | 1 | 1 |
| Max. Operating temperature | °C | 80 | 80 | 80 | 50 |
| Initial pressure-drop | mbar | 40 | 80 | 115 | 80 |
| Pressure-drop for element change | mbar | 350 | 350 | 350 | NA |

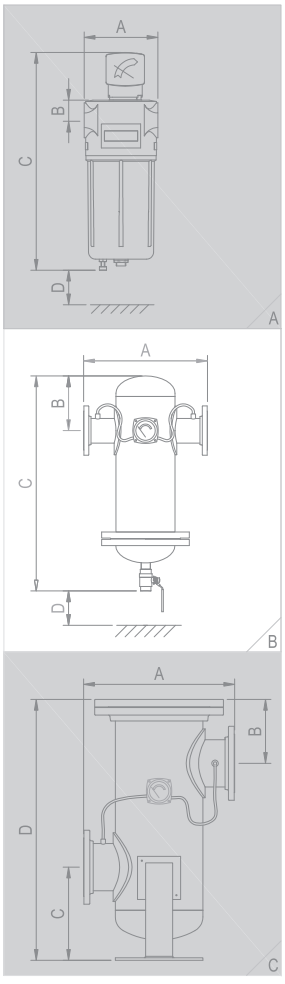
## Puro Fillters

Summits Puro filter element is made of finely crafted borosilicate glass fiber media. It operates at lowest operating cost by virtue of their highest void volume – 96%. This provides enormous space for dust holding and thus extends effective operating life.

Puro filter has four different filtration grades to meet almost all kind of application requirement. Pleated or Wound, Particulates or Coalescing Puro has them all.

**Flow rate and Dimensional data for 16bar(g)**

| Model | In & Out BSPP (F) | Flow rate(cfm) | Housing Dimension (mm) | | | | DP gauge | Manual drain | Housing material | Ref. drg |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | | | | |
| Puro 002 | 1/2” | 20 | 69 | 20 | 188 | 100 | ☐ | X | Aluminium Alloy<br><br>(Optional: Carbon steel Stainless steel Etc...) | A |
| Puro 004 | 3/4” | 40 | 95 | 22 | 313 | 100 | ☐ | X | | |
| Puro 006 | 3/4” | 60 | 95 | 22 | 313 | 130 | ☐ | X | | |
| Puro 008 | 1" | 80 | 122 | 33 | 361 | 170 | ☐ | √ | | |
| Puro 012 | 1" | 120 | 122 | 33 | 475 | 250 | ☐ | √ | | |
| Puro 020 | 11/2" | 200 | 122 | 33 | 532 | 320 | √ | √ | | |
| Puro 035 | 11/2" | 310 | 122 | 33 | 621 | 400 | √ | √ | | |
| Puro 050 | 2" | 500 | 156 | 43 | 767 | 450 | √ | √ | | |
| Puro 070 | 2" | 700 | 156 | 43 | 767 | 520 | √ | √ | | |
| Puro 100 | 3" | 1000 | 230 | 73 | 846 | 510 | √ | √ | | |
| Puro 125 | 3" | 1250 | 230 | 73 | 846 | 560 | √ | √ | | |
| 4” and above In & Out conforms to ASME B16.5 Class 150, SORF | | | | | | | | | | |
| Puro 175 | 4” | 1750 | 500 | 240 | 1400 | 250 | √ | √ | Carbon Steel<br><br>(Optional: Stainless steel) | B |
| Puro 250 | 4” | 2500 | 500 | 240 | 1400 | 250 | √ | √ | | |
| Puro 350 | 6” | 3500 | 580 | 275 | 1450 | 250 | √ | √ | | |
| Puro 500 | 6” | 5000 | 650 | 325 | 1450 | 250 | √ | √ | | |
| Puro 650 | 8” | 6500 | 800 | 300 | 760 | 1800 | √ | √ | | C |
| Puro 800 | 8” | 8000 | 875 | 300 | 760 | 1800 | √ | √ | | |
| Puro 999 | 10” | 10000 | 900 | 350 | 760 | 1950 | √ | √ | | |
| Puro 12K | 10” | 12000 | 900 | 350 | 760 | 1950 | √ | √ | | |
| Puro 15K | 12” | 15000 | 1100 | 350 | 1000 | 2200 | √ | √ | | |

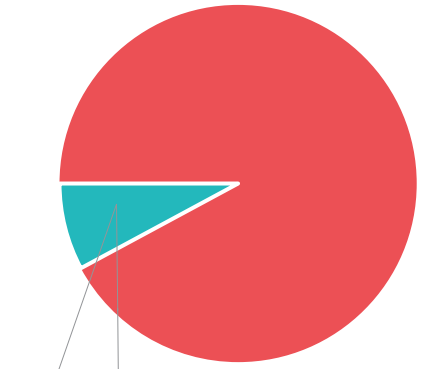



Note: Rated operating pressure: 7 bar(g). ☐-Optional; √-Available; X-Not available
For other pressure use correction factor. Refer sizing example for clarity.

| Nomenclature<br>Ordering code: Puro 050 DY | | | |
|---|---|---|---|
| **Puro** | 050 | D | Y |
| Series Name | Capacity identifier | Maximum operating pressure | Element grade |
| **Puro** | **050 = 50x10=500cfm** | **D: 16 bar(g)**<br>E: 40 bar(g)<br>F: 70 bar(g) | P: 5µ<br>X: 1µ<br>**Y: 0.01µ**<br>A: 0.003mg/m3 |

### Sizing example

Compressor FAD : 550 cfm
Filtration rating : 1µ
Operating pressure : 5 bar(g)
Correction factor corresponding to 5 bar(g) : 0.84
Corrected FAD : 550 / 0.84 = 655 cfm
So, select Puro070 DX whose capacity is 700cfm which is more than 655cfm.



Savings per year due to 0.1 bar gain in pressure is Rs. 6,72,768 /- (160kw, 1026cfm at 7bar(g) air compressor)

### Correction factor for sizing

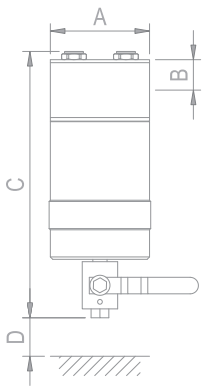
| Pressure, bar(g) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Correction factor | 0.38 | 0.53 | 0.65 | 0.76 | 0.84 | 0.92 | 1 | 1.07 | 1.13 | 1.19 | 1.25 | 1.31 | 1.36 | 1.41 | 1.46 | 1.51 |

## High pressure PuroHp series



Manufactured up to 550bar(g)

| Flow rate and Dimensional data for 40bar(g) | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | **In & Out BSPP (F)** | **Flow Rate (cfm)** | **Housing Dimension (mm)** | | | |
| | | | **A** | **B** | **C** | **D** |
| Puro 002 | 3/8" | 20 | 70 | 26.5 | 202 | 160 |
| Puro 004 | 1/2" | 40 | 70 | 26.5 | 202 | 160 |
| Puro 006 | 1/2" | 60 | 84 | 34 | 220 | 175 |
| Puro 008 | 3/4" | 80 | 84 | 34 | 240 | 190 |
| Puro 012 | 3/4" | 120 | 84 | 34 | 272 | 220 |
| Puro 020 | 1" | 200 | 116 | 49 | 290 | 230 |
| Puro 035 | 1" | 350 | 118 | 39 | 425 | 340 |
| Puro 050 | 1 1/4" | 500 | 118 | 39 | 510 | 410 |
| Puro 070 | 1 1/4" | 700 | 112 | 43 | 636 | 510 |




Notes

1. Specify ‘Puro 012 EY’ to order filter for 120cfm, 40 bar(g), 0.01µ. Refer ‘Nomenclature table’ for clarity.
2. Summits has manufactured ultra-high pressure filter up to 550 bar(g) working pressure. Please contact factory for any high-pressure requirements.

**Features of PuroHp filter**

1. Designed to ASME SEC VIII DIV. 1
2. Maximum operating pressure: 40 bar(g)
3. Maximum operating temperature: 80°C
4. Anodized aluminium alloy housing
5. In-house high pressure test facilities assure safety
6. Provision for Differential pressure gauge
7. Manual ball valve for Drain




**Advanced alert**
Differential pressure gauge of range **0 to 500mbar** alerts in advance to change the filter element.

Unlike piston operated DP gauge, diaphragm DP gauge isolates high and low sides of the filter completely ensuring zero bypass flow.

**Coated and clean**
Puro series filter is made of die cast aluminium alloy. To enhance its corrosion resistance, it further undergoes **Electrophoretic coating** which provides high resistance against corrosion and also increases its wear resistance property.



**Pleated filter media**
Every 1 bar pressure drop increases 6% of compressor power. Filter element having pleated media has **4 times more surface area** compared to conventional filters and offers less pressure drop.



## Key features of Puro Filter



**3D Sectorized diffuser** in larger filter elements divides & distributes inlet air longitudinally throughout its entire surface uniformly. This ensures effective utilization of element surface and offers extended life.

1D Conventional diffuser







Flow slides over end cap - promotes gravity settling of heavy dust particles.



Brass bottom drainvalve (Optional)



**Drain valve**
Zero air loss internal auto drain valve having **FKM seals** offers trouble-free operation with both **mineral and synthetic oil.**

In addition to Zero air loss internal auto drain valve a manual override valve is provided to **facilitate routine check-up** and maintenance.



# Harvesting the elements of air through innovation for

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