

# Disposable Breathers

Installation of Des-Case® breathers at critical ingress points is a cost-effective means to prevent contaminants from entering the fluid reservoirs as differential pressures occur. Reverse flow through the breather allows for regeneration of the desiccant and prevents oil vapors from entering the work environment.

	<i>Benefits</i>	<i>Environment</i>
 <p>Disposable Desiccant Breathers</p>	<p>Foam pad disperses air evenly over filter media and silica gel.</p> <p>Patented polyester filter captures particles as small as 0.5 <math>\mu</math> (73.5% efficiency), 3 micron absolute (<math>\beta_3 &gt;200</math>).</p> <p>Silica gel desiccant removes moisture from incoming air, extending fluid and system life.</p> <p>Air intake plug ring allows for controlled breathing and easy activation of the unit without tools.</p> <p>Different sizes allow for adaptation to virtually any system.</p>	<p>Intermittent operations</p> <p>Gearboxes</p> <p>Hydraulic reservoirs</p> <p>Transformers</p> <p>Storage Tanks</p> <p>Totes</p>
 <p>Hydroguard VentGuard™</p>	<p>Foam pad stops oil mist during exhalation and disperses air evenly over filter media and silica gel.</p> <p>Patented polyester filter captures particles as small as 0.5 <math>\mu</math> (73.5% efficiency), 3 micron absolute (<math>\beta_3 &gt;200</math>).</p> <p>Expansion chamber creates a nearly sealed system.</p> <p>Silica gel removes water from incoming air, extending fluid and system life.</p> <p>Quad check valves provide a slight system pressurization, protecting system integrity.</p> <p>VentGuard offers same benefits as our Hydroguard, but smaller footprint.</p>	<p>Thermal expansion / contraction only</p> <p>Gearboxes and other low flow applications</p> <p>Washdown applications</p> <p>Pumps</p> <p>Closed loop systems</p> <p>Bearing houses</p> <p>Storage drums, totes</p>
 <p>TRIPLEPLAY DOUBLEPLAY</p>	<p>Pleated filter element's large surface area blocks particles as small as 1 <math>\mu</math> absolute (99.5% efficiency).</p> <p>Oil-coalescing media (TriplePlay only) drains oil back to system, prevents contamination of work environment.</p> <p>Optional vacuum indicator actuates when maximum restriction is reached, protects system integrity.</p> <p>Hydrophobic media repels free water, yet permits humid air to escape.</p>	<p>Low humidity applications</p> <p>Arid, high dust environments</p> <p>Continuous operations with frequent washdowns</p> <p>Applications that create "oil misting"</p>
 <p>Disposable Steel Breathers</p>	<p>Foam pad disperses air evenly over filter media and silica gel</p> <p>Optional flapper valve adapter optimizes breather longevity.</p> <p>Silica gel removes water from incoming air, extending fluid and system life</p> <p>Microglass media removes particles as small as 0.5 <math>\mu</math> (73.5% efficiency), 1 micron absolute (<math>\beta_1 &gt;200</math>)</p> <p>Rugged metal housing</p> <p>Dual viewing windows for easy system monitoring</p>	<p>Harsh environments</p> <p>High temperature</p> <p>Mobile equipment</p> <p>Nautical applications</p>

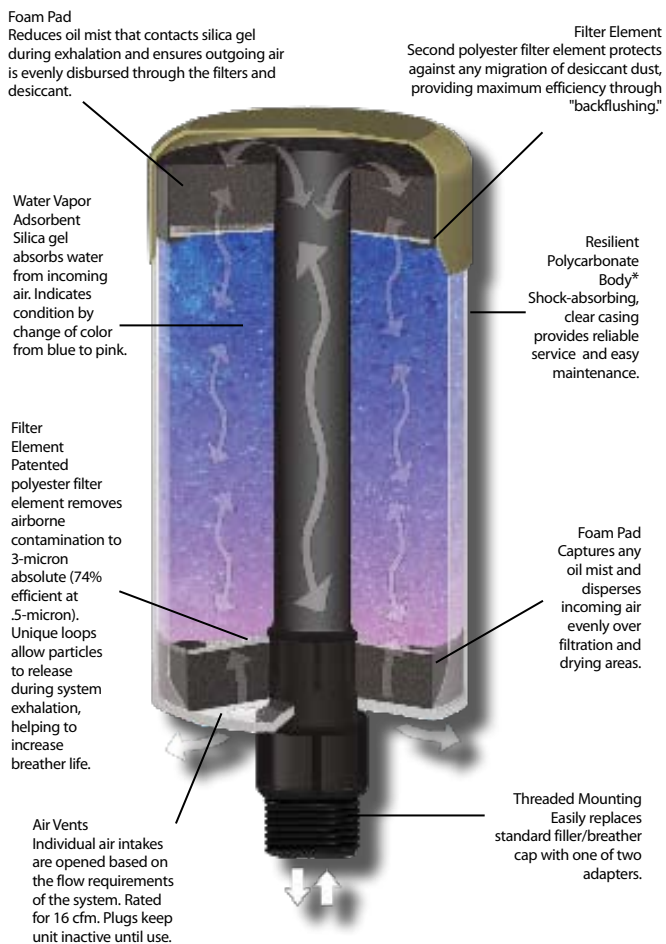
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# Disposable Standard Breathers

*simple, dependable lubricant protection*



- Resilient clear polycarbonate body
- Bi-directional, controlled airflow
- Multi-tiered filtration process
- Water vapor adsorbent
- 3-micron absolute particulate filter elements
- Color indicator for easy system monitoring



\*The end user is responsible for ensuring chemical compatibility for specific applications.

Model Number	DC-2	DC-3	DC-4
Unit Height	6.125" / 15.56 cm	8.125" / 20.64 cm	10.125" / 25.72 cm
Diameter	4" / 10.16 cm	4" / 10.16 cm	4" / 10.16 cm
Shipping Weight (unit/case)	1 lb. 3 oz. / 9 lbs.	1 lb. 12 oz. / 11 lbs. 8 oz.	2 lbs. 7 oz. / 16 lbs.
Amount of Silica Gel	11 oz.	1 lb. 4 oz.	1 lb. 14 oz.
Adsorption Capacity	0.13 L	0.23 L	0.35 L
Max. Flow Rate (cfm)	16 @ 1 PSID	16 @ 1 PSID	16 @ 1 PSID
Cap	Black	Blue	White
Operating Temp. Range	-20°F to 200°F / -29°C to 93°C	-20°F to 200°F / -29°C to 93°C	-20°F to 200°F / -29°C to 93°C
Body Material	Nylon & Polycarbonate	Nylon & Polycarbonate	Nylon & Polycarbonate
Hydrophilic Agent	Silica Gel	Silica Gel	Silica Gel
Filter Media	Polyester	Polyester	Polyester
Connection Size	1"	1"	1"

# Disposable Breathers

## Miniature Disposable Breathers

<http://www.descase.com/miniature-breathers/>

Diminutive design aids installation in confined areas.



DC-BB DC-1

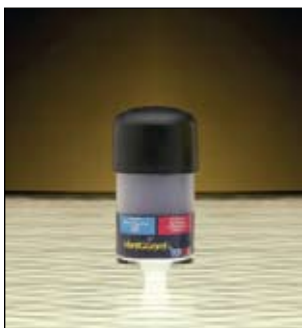
Model Number	DC-BB	DC-1
Unit Height	3" / 7.62 cm	5" / 12.7 cm
Unit Diameter	2.75" / 6.99 cm	2.75" / 6.99 cm
Amount of Silica gel (oz./g)	2 oz. / 57 g	4 oz. / 113 g
Adsorption Capacity (fl.oz/mL)	0.4 fl. oz. / 12 mL	0.8 fl. oz. / 24 mL
Max. Flow Rate (cfm)	3 @ 1 PSID	1 @ 1 PSID
Filtration (μ absolute)	3	3
Op. Temp. Range (°F/°C)	-20/-28.9 to 200/93	-20/-28.9 to 200/93
Hydrophilic Agent	Silica Gel	Silica Gel
Filter Media	Polyester	Polyester
Connection Size (NPT)	3/8"	3/8"

## Hybrid Breathers – Hydroguard™ and VentGuard™

*hybrid technology breathers for specialty applications*



- Hydroguard is ideal for washdowns and high humidity areas
- Desiccant, particulate filtration ensures incoming air is clean and dry
- Expansion chamber system isolates lubes from extreme ambient humidity (Hydroguard)
- Check valves ensure no excess pressure/vacuum builds
- VentGuard incorporates advantages of Des-Case disposable standard breathers in a smaller footprint optimized for use with pumps and gearboxes



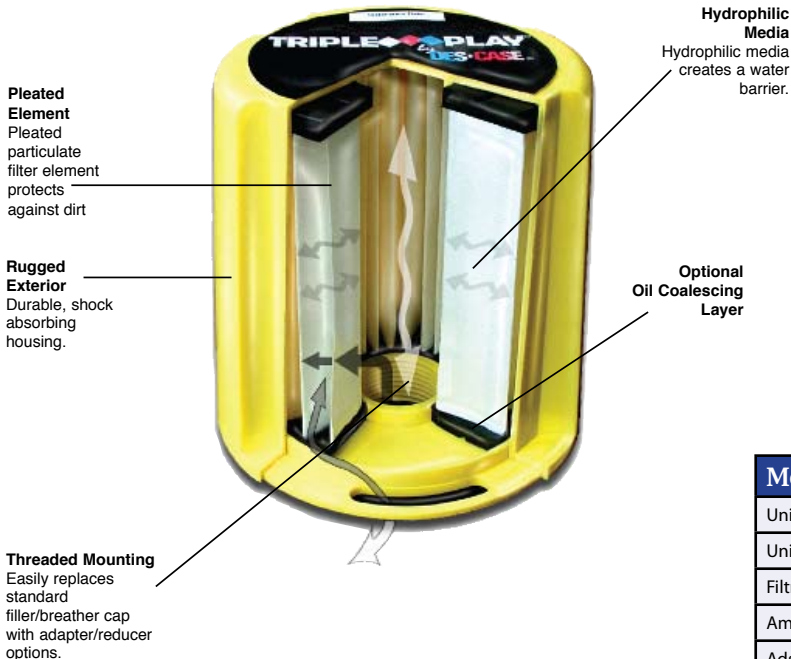
Model Number	DC-HG-8	DC-VG-1
Unit Height	9.75" / 24.76 cm	5" / 12.7 cm
Unit Diameter	4.1" / 10.41 cm	2.75" / 6.99 cm
Amount of Silica gel (oz./g)	10.4 oz. / 240 g	4.8 oz. / 136 g
Adsorption Capacity (fl.oz/mL)	4.05 fl. oz. / 120 mL	0.8 fl.oz / 29.6 mL
Max. Flow Rate (cfm)	2.5 @ 1 PSID	0.9 @ 1 PSID
Filtration (μ absolute)	3	3
Op. Temp. Range (°F/°C)	-20/-28.9 to 200/93	-20/-28.9 to 200/93
Hydrophilic Agent	Silica Gel	Silica Gel
Filter Media	Polyester	Polyester
Connection Size	1"	3/8" (NPT)

# Nondesiccant Breathers - DoublePlay™ and TriplePlay™

*nondesiccant filters*



- Creates an impenetrable barrier against water droplets
- Pleated element provides a large surface area and is 99.5% efficient in blocking particles 1µ and larger
- Coalesces oil mist, preventing contamination of working environment (TriplePlay only).
- Visual vacuum indicator option actuates before maximum restriction is reached
- Rugged ABS plastic housing
- Easy installation requires hand tighten only.



**DOUBLE  PLAY**  
**TRIPLE  PLAY**

Model Number	DC-SB-25	DC-SB-35
Unit Height	5" / 12.7 cm	5" / 12.7 cm
Unit Diameter	5" / 12.7 cm	5" / 12.7 cm
Filtration Area	180 in. <sup>2</sup> / 1161 cm <sup>2</sup>	180 in. <sup>2</sup> / 1161 cm <sup>2</sup>
Amount of Silica gel (lbs./kg)	n/a	n/a
Adsorption Capacity (fl.oz/ L)	n/a	n/a
Max. Flow Rate (cfm)	40 @ 1 PSID	40 @ 1 PSID
Filtration (µ absolute)	1	1
Op. Temp. Range (°F/°C)	-20/-28.9 to 200/93.3	-20/-28.9 to 200/93.3
Hydrophilic Agent	n/a	n/a
Filter Media	Polyester	Oleophobic Polyester
Connection Size (NPT)	1"	1"

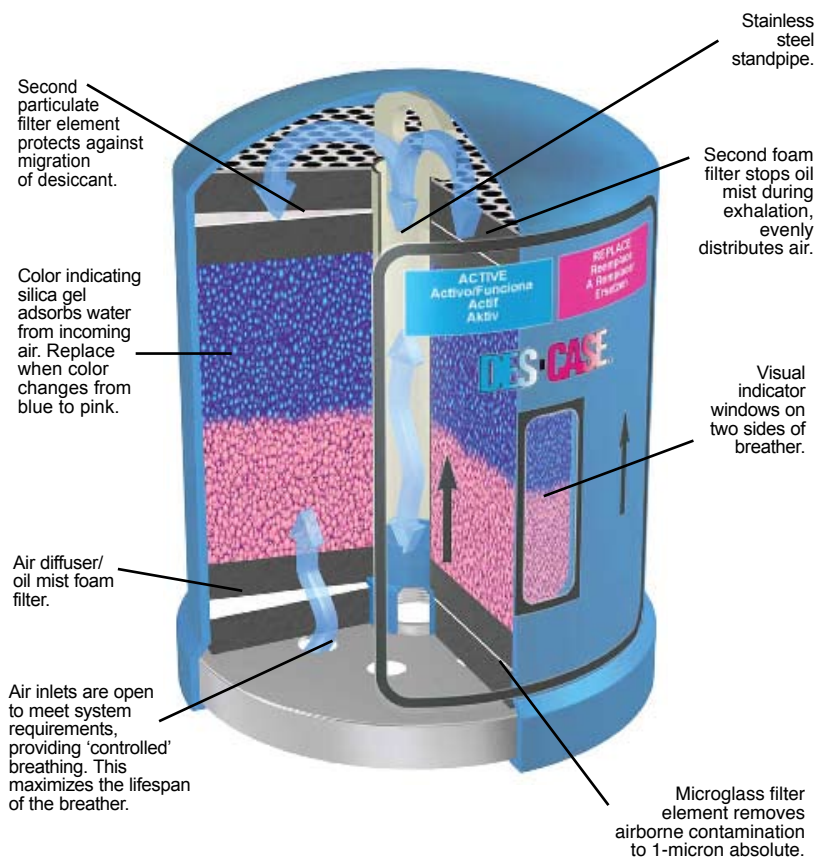
# Disposable Breathers

## Disposable Steel Breathers

*ideal for harsh environments*



- Rugged housing ideal for harsh environments, high temperatures, and mobile and nautical applications.
- Color indicator windows for easy system monitoring
- Bi-directional, controlled airflow
- Multi-tiered filtration process
- Water vapor adsorbent
- Optional flapper valve adapter optimizes breather longevity



Model Number	DC-DS-6
Unit Height	6.5" / 16.5 cm
Diameter	5" / 12.7 cm
Hydrophilic Agent	Silica Gel
Amount of Silica Gel	1 lb. 8 oz. / 680 g
Adsorption Capacity	9 fl. oz. / 266 mL
Max. Flow Rate (cfm)	20 @ 1 PSID
Op. Temp. Range (°F/°C)	-20/-28.9 to 250/121
Filter Media	Microglass

From the core stainless steel standpipe to its rugged aluminum exterior, every element of Des-Case's disposable steel breather has been designed to stand up to a wide variety of applications in challenging environments.

Des-Case disposable steel hygroscopic breathers attack the cause of contamination, keeping dirt and water where it belongs – out of your equipment.

# Disposable Breather Accessories

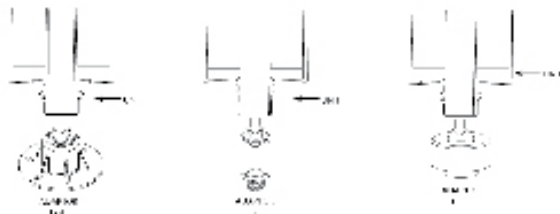
*meeting your specific needs*

Des-Case provides a wide range of disposable breather accessories for easy adaptation to your specific applications and working environment.

Model #	Description
DC-12-T	Connects standard breather or Hydroguard to 6-hole flange opening
DC-13-T	Connects standard breather or Hydroguard to 1" male threaded connection
DC-15-T	Connects standard breather or Hydroguard to 1½" bayonet-style opening
DC-17-T	Connects standard breather or Hydroguard to ¾" female threaded connection
DC-35	Connects DC-BB, DC-1 or VentGuard to ¾" female threaded connection
DC-36	Connects DC-BB, DC-1 or VentGuard to 1" female threaded connection
DC-37	Connects DC-BB, DC-1 or VentGuard to ½" female threaded connection
DC-DSA-10	Seats disposable steel breather on 1" female threaded connection
DC-DSA-17	Seats disposable steel breather on ¾" female threaded connection
DC-DSV5	Flapper valve adapter seats disposable steel breather on 1" male threaded connection
DC-13-T-VI	Standard breather to 1" male threaded connection adapter, with single-position vacuum indicator
DC-OCM5-VI	Standard breather to 1" male threaded connection adapter, with oil-mist coalescing media and single-position vacuum indicator
DC-SB-VI	Connects DoublePlay™ and TriplePlay™ to 1" female threaded connection with single-position vacuum indicator
DC-ME-2-T	Connects two standard breathers to 2" female threaded connection
DC-ME-3-T	Connects three standard breathers to 2" female threaded connection
DC-ME-4-T	Connects four standard breathers to 2" female threaded connection

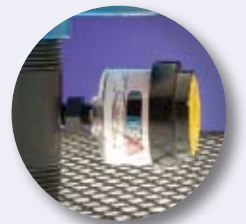
See pages 20 and 21 for fluid handling adapters.

## Mounting Adapters



## Vacuum Indicator Adapter

Single position indicator actuates when maximum filter restriction has been reached.



DC-SB-VI

## Oil Coalescing Adapter

Oil coalescing media captures oil mist, funnels back to system.



DC-OCM5-VI

## Breather Manifolds

Available in 2, 3 or 4 breather configurations to mount multiple disposable breather models.



DC-ME-2-T, DC-ME-3-T  
DC-ME-4-T

## Flapper Valve Adapter

Optimizes disposable steel breather longevity.



DC-DSV5

# Rebuildable Steel Breathers

*for harsh or corrosive environments*

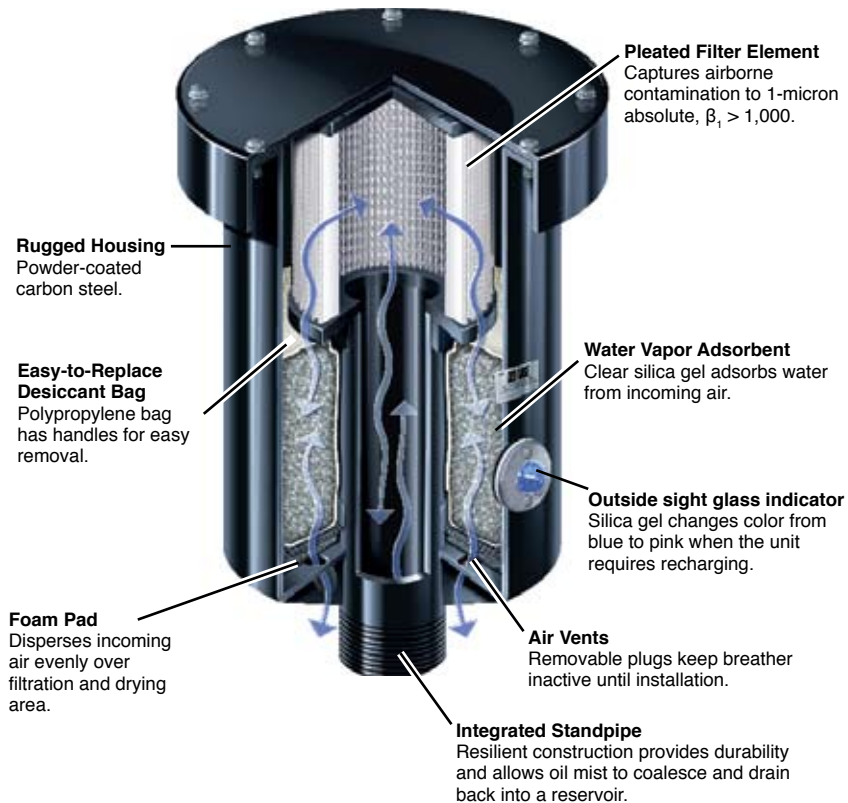


Model #	DC-RS-3	DC-RS-5	DC-RS-9	DC-RS-15	DC-RS-25	DC-RS-50	DC-RS-75	DC-RS-100	DC-RS-150	DC-RS-200
Height (in./cm.)	11.5/29.2	13.75/34.9	18.25/46.4	19.25/48.9	22.5/57.1	31.25/79.4	39.75/101	31/78.7	36.75/93.3	42.75/108.6
Width (in./cm.)	10.13/25.72	10.13/25.72	10.13/25.72	15.5/39.37	15.5/39.37	15.5/39.37	15.5/39.37	23.5/59.69	23.5/59.69	23.5/59.69
Connection Size (NPT)	2"	2"	2"	3"	3"	3"	3"	4"	4"	4"
Amount of Desiccant (lbs./kg)	3/1.36	5/2.27	9/4.08	15/6.80	25/11.34	50/22.68	75/34.02	100/45.36	150/68.04	200/90.72
Flow rate at 0.5 PSID (cfm)	85	85	80	205	140	115	80	270	250	240
Approx. Dry Weight (lbs/kg)	16/7.26	20/9.07	27/12.25	49/22.23	64/29.03	100/45.36	144/65.32	190/86.18	253/114.76	315/142.88
Adsorption Capacity (L/gal)	0.54/0.14	0.90/0.24	1.62/0.43	2.7/0.71	4.5/1.19	9.0/2.38	13.5/3.57	18.0/4.75	27.0/7.13	36.0/9.51
Operating Temperature	-20 to 220°F / -29 to 104°C									

## *How the Product Works*

As wet, dirty air is drawn through the unit, a 1-micron microglass pleated filter element removes solid particulate and the hygroscopic agent extracts moisture.

When the air is expelled from the container, the foam pad cleans itself by releasing dirt back into the atmosphere. The hygroscopic agent is partially reactivated by the dry air passing back through, thereby permitting longer periods between recharging or replacing.



## Parts and Accessories

Model Number*	Description
DC-13-6C	Threaded Adapter for DC-RS-3, DC-RS-5, and DC-RS-7.
DC-13-10C	Threaded Adapter for DC-RS-15, DC-RS-25, DC-RS-50, and DC-RS-75.
DC-13-40C	Threaded Adapter for DC-RS-100, DC-RS-150, and DC-RS-200.
DC-RS-X-RK	Rebuildable Steel Breather Rebuild Kits
DC-RS-X-F1	Rebuildable Steel Breather Microglass Filter Elements
DC-RS-X-D1	Rebuildable Steel Breather Desiccant Bag Sets
DC-RS-X-SG1	Rebuildable Steel Breather Sight Glass Cartridges
DC-RS-X-P1	Rebuildable Steel Breather Foam Pad Inserts
DC-RS-X-G1	Rebuildable Steel Breather Gasket Seals

\* For part codes containing X, substitute the appropriate RS model number. (Example: the part code for a sight glass cartridge for the DC-RS-150 would be DC-RS-150-SG1.)

**Des-Case recommends use of a pressure/relief valve on any tank or storage system.**

## Steel Unit Adapters

There are several steel unit adapters available to meet your needs.



## Rebuild Kit Components

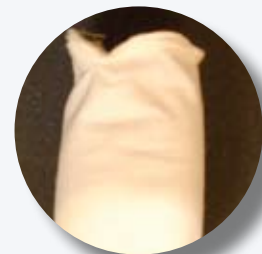
### Replacement Filter Element

Captures airborne contamination to 1-micron absolute.



### Desiccant Bag Filter

Polypropylene bag has handles for easy removal and replacement.



### Sight Glass Indicator

Silica gel changes color from blue to pink when the unit requires recharging.



### Gasket

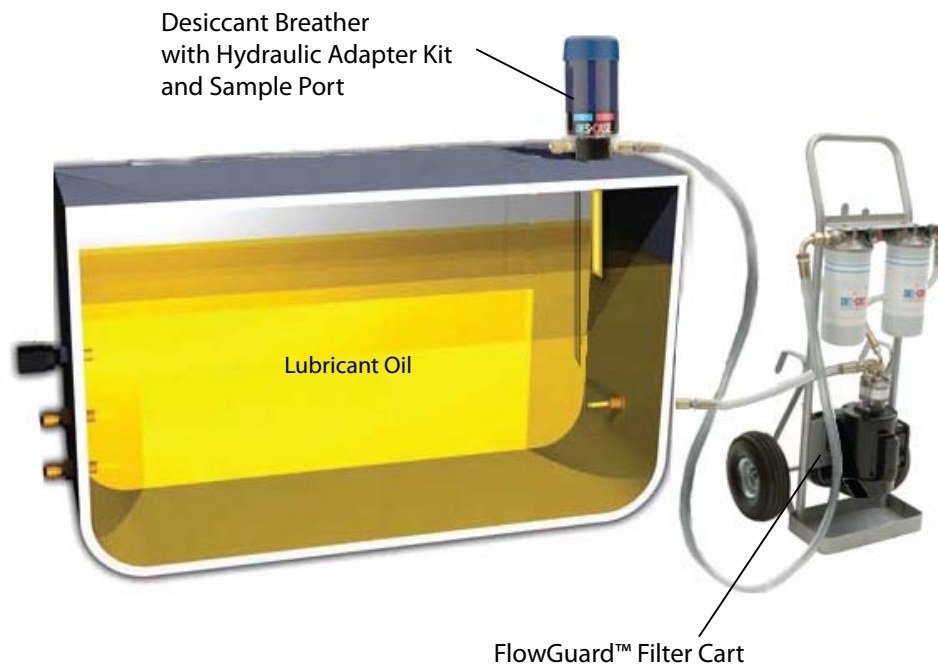
Seals breather at removable lid.

### Foam Pad

Disperses incoming air evenly over filtration and drying areas.

# FlowGuard™ Fluid Handling

*a proactive approach to contamination control*



## ***Fluid Handling Solutions Capture Contaminants***

Our fluid handling solutions are filtration systems when used to filter fluid inside a reservoir. They can also be a means of transferring fluids cleanly when used to move lubricants from a drum to a reservoir. In either mode, they are an economical solution to offline filtration requirements.

Filter carts, drum toppers, and panel units should be used to remove particles, thereby preserving the working life of the oil. They are not just a tool for emergency remedial measures when dealing with contaminated lubricants and hydraulic fluids. To avoid cross-contamination of fluids, make sure there is a dedicated solution for each type of lubricant in use. Each solution should be fitted with quick disconnects and particle removal and/or water adsorbing filter elements, and should be part of a routine that includes new oil filtering, transferring, and dispensing oils.

Our fluid handling solutions ensure higher levels of cleanliness when used in daily operations. They are the ideal way to pre-filter and transfer fluids into reservoirs. Fluids should always be filtered before being put into service. Contamination, both particulate and water, may be added to new fluid during processing, mixing, or handling and can be removed using your choice of fluid handling products.

# Fluid Handling Solutions

*highly customizable*

Des-Case® FlowGuard™ fluid handling systems incorporate smart technology to make fluid handling a simple task, requiring less equipment and labor while reducing system contamination. Visit [www.descase.com/flowguard](http://www.descase.com/flowguard) to customize your own solution.

## Filter Carts



### Offline Filtration for Clean Oil

#### *Features and benefits:*

- Heavy duty cart with oil catch pan
- Pneumatic wheels
- 12' long hose assemblies
- True filter bypass allows easy transfer of clean oil
- Pressure gauge protects your system, allowing you to monitor system pressure

## Drum Toppers



### Small, Portable Filtration

#### *Features and benefits:*

- Compact design for easy storage and maintenance
- 5' long hose assemblies

## Panel Units



### Permanently-Mounted Filtration

#### *Features and benefits:*

- Pressure gauge protects your system, allowing you to monitor system pressure
- Optional oil cooler helps extend fluid life
- 5' long hose assemblies

## Adapter Kits



### Prohibit entry of dirt and moisture

#### *Features and benefits:*

- Des-Case replaceable breathers are used to prohibit the entry of particulate contamination
- Quick couplers eliminate messy leaks.
- Kit options designed for a variety of applications:
  - Hydraulic systems
  - Drums
  - Gearboxes
  - Totes

*FlowGuard™ filter carts, drum toppers, and panel units are equipped with:*

- Two filters provide dual-stage filtration, which maximizes particle removal
- Clear PVC reinforced hoses to allow visual confirmation of product flow
- Quick couplers to eliminate messy leaks
- An automatic filter bypass set at 25 PSID for safety
- An easy-to-read pop-up differential pressure indicator to announce filter replacement time
- Industrial powder-coated paint provides durability and makes it easy to differentiate between assorted lubricants by paint color selection



# FlowGuard™ Fluid Handling

## Filter Carts

*portable, offline filtration*



Industry spends millions of dollars annually treating the negative effects of contamination caused by dirt and moisture. Contaminated lubricating oil and hydraulic fluid results in excess machine wear, production downtime, and repair costs.

Actively filtering lubricants can prevent contamination-related problems. Heavy duty, lots of options, exceptional value ... our FlowGuard™ filter carts are uniquely yours. You can select from dozens of components with our online customizer at [www.descase.com/flowguard](http://www.descase.com/flowguard).



Features	Benefits
Heavy duty cart with oil catch pan	Promotes safety and environmental cleanliness
Pneumatic wheels	Makes mobile filtration easier
12' long hose assemblies	Allows greater flexibility of use
Filter bypass	Allows easy transfer of clean oil
Dual-stage filtration	Ensures optimal lubricant cleanliness
Industrial powder-coated paint	Provides durability
Customizable colors	Makes it easy to differentiate between assorted lubricants by paint color selection
Various hose end connections	Allows for adaptation to your specific applications

## How to order FlowGuard™ Filter Cart Series:

Select the desired symbol (in the correct position) to construct a model code. Then contact your local distributor or call Des-Case if you don't see the options you need or would like additional assistance.

<b>FH</b>												
	Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8	Box 9	Box 10	Box 11	Box 12

PUMP * [Box 1]	
Code	Description
02E	2 gpm / 1 hp electric (for viscosity ≤ ISO 680) / 115 VAC
05E	5 gpm / 1 hp electric (for viscosity ≤ ISO 220) / 115 VAC
10E	10 gpm / 1 hp electric (for viscosity ≤ ISO 68) / 115 VAC
20E†	20 gpm / 1.5 hp electric (for viscosity ≤ ISO 68) / 115 VAC
02F	2 gpm / 1 hp electric (for viscosity ≤ ISO 680) / 230 VAC
05F	5 gpm / 1 hp electric (for viscosity ≤ ISO 220) / 230 VAC
10F	10 gpm / 1 hp electric (for viscosity ≤ ISO 68) / 230 VAC
20F†	20 gpm / 1.5 hp electric (for viscosity ≤ ISO 68) / 230 VAC
02A	2 gpm / 1.5 hp Air (for viscosity ≤ ISO 680)
08A	8 gpm / 1.5 hp Air (for viscosity ≤ ISO 68)

DRAIN CONNECTOR / SUCTION SIDE * [Box 2]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector
W	Wand Connector
N	Threaded End

\* All are coupler ends (female)

DRAIN CONNECTOR / HOSE SIZE [Box 3]	
Code	Description
3†	1/2 inch
5	3/4 inch
7	1 inch

† not for 20 gpm

† Due to amperage draw, the 230 VAC (20F) is favored when selecting a 20GPM system.

\* Performance will vary depending on temperature, filter combination, bypass options, hose sizes, connectors, and fluid type.

FILL CONNECTOR / PRESSURE SIDE * [Box 4]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector
W	Wand Connector
N	Threaded End

\* All are coupler ends (female)

FILL CONNECTOR / HOSE SIZE [Box 5]	
Code	Description
3†	1/2 inch
5	3/4 inch
7	1 inch

† not for 20 gpm

FILTER A [Box 6] / FILTER B [Box 7]	
Code	Description
A	3-micron particulate Filter
B	6-micron particulate Filter
C	12-micron particulate Filter
D	25-micron particulate Filter
J	Water Filter

FILTER BYPASS [Box 8]	
Code	Description
0	No Bypass
1	Filter Bypass

SAMPLE PORTS [Box 9]	
Code	Description
0	None
1	Standard
2	High-Viscosity
4	Push Button

ELECTRIC CORD [Box 10]	
Code	Description
0	None (air pump)
1	25 foot Cord
2	25 foot Cord Reel (not available for 20gpm/1.5hp pump)

RELIEF VALVE * [Box 11]	
Code	Description
0	No Relief Valve
1	Relief Valve

\* This safety relief valve prevents the pump pressure from surpassing 65 PSI.

CUSTOM COLORS [Box 12]	
Code	Description
1	Brushed Aluminum (standard)
2	Black
3	White
4	Blue
5	Red
6	Yellow

# FlowGuard™ Fluid Handling

## Drum Toppers

*compact, portable filtration*



Contaminated lubricating oil and hydraulic fluid results in excess machine wear, production downtime, and repair costs. Actively filtering lubricants can prevent contamination-related problems – and Des-Case is taking filtration to new places.

Compact, portable, and customized for your application, the FlowGuard™ drum topper is an option you can carry wherever you need to go.

Design your drum topper at [www.descase.com/flowguard](http://www.descase.com/flowguard).

Features	Benefits
Compact design	Allows for easy storage and maintenance
Filter bypass	Allows easy transfer of clean oil
Dual-stage filtration	Ensures optimal lubricant cleanliness
Industrial powder-coated paint	Provides durability
Customizable colors	Makes it easy to differentiate between assorted lubricants by paint color selection
Various hose end connections	Allows for adaptation to your specific applications

## How to order FlowGuard™ Drum Topper Series:

Select the desired symbol (in the correct position) to construct a model code. Then contact your local distributor or call Des-Case if you don't see the options you need or would like additional assistance.

<b>FD</b>										
	Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8	Box 9	Box 10

PUMP * [Box 1]	
Code	Description
02E	2 gpm / 0.25 hp electric for viscosity ≤ ISO 460) / 115 VAC
02F	2 gpm / 0.25 hp electric (for viscosity ≤ ISO 460) / 230 VAC
02A	2 gpm / 1.5 hp Air (for viscosity ≤ ISO 460)
08A	8 gpm / 1.5 hp Air (for viscosity ≤ ISO 68)

\* Performance will vary depending on temperature, filter combination, bypass options, hose sizes, connectors, and fluid type.

DRAIN CONNECTOR / SUCTION SIDE * [Box 2]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector
W	Wand Connector
N	Threaded End

\* All are coupler ends (female)

DRAIN CONNECTOR / HOSE SIZE [Box 3]	
Code	Description
3	1/2 inch
5	3/4 inch
7	1 inch

FILL CONNECTOR / PRESSURE SIDE * [Box 4]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector
W	Wand Connector
N	Threaded End

\* All are coupler ends (female)

FILL CONNECTOR / HOSE SIZE [Box 5]	
Code	Description
3	1/2 inch
5	3/4 inch
7	1 inch

FILTER A [Box 6] / FILTER B [Box 7]	
Code	Description
K	3-micron particulate Filter
L	6-micron particulate Filter
M	12-micron particulate Filter
W	Water Filter
0	None

FILTER BYPASS [Box 8]	
Code	Description
0	No Bypass
1	Filter Bypass

SAMPLE PORTS [Box 9]	
Code	Description
0	None
1	Standard
2	High-Viscosity

CUSTOM COLORS [Box 10]	
Code	Description
1	Brushed Aluminum (standard)
2	Black
3	White
4	Blue
5	Red
6	Yellow

# FlowGuard™ Fluid Handling

## Panel Units

*fixed filtration*



Whether you have an application that needs continuous filtration, or a maintenance location where you bring equipment to be filtered, our FlowGuard™ panel unit is a made-to-order solution which can be mounted where you need it most.

Customize your panel unit at [www.descase.com/flowguard](http://www.descase.com/flowguard).



Features	Benefits
Filter bypass	Allows easy transfer of clean oil
Dual-stage filtration	Ensures optimal lubricant cleanliness
Industrial powder-coated paint	Provides durability
Customizable colors	Makes it easy to differentiate between assorted lubricants by paint color selection
Oil cooler (optional)	Helps extend life of oil

## How to order FlowGuard™ Panel Unit Series:

Select the desired symbol (in the correct position) to construct a model code. Then contact your local distributor or call Des-Case if you don't see the options you need or would like additional assistance.

<b>FP</b>									
	Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8	Box 9

PUMP * [Box 1]	
Code	Description
02E	2 gpm / 1 hp electric (for viscosity ≤ ISO 680) / 115 VAC
05E	5 gpm / 1 hp electric (for viscosity ≤ ISO 220) / 115 VAC
10E	10 gpm / 1 hp electric (for viscosity ≤ ISO 68) / 115 VAC
02F	2 gpm / 1 hp electric (for viscosity ≤ ISO 680) / 230 VAC
05F	5 gpm / 1 hp electric (for viscosity ≤ ISO 220) / 230 VAC
10F	10 gpm / 1 hp electric (for viscosity ≤ ISO 68) / 230 VAC
02A	2 gpm / 1.5 hp Air (for viscosity ≤ ISO 680)
08A	8 gpm / 1.5 hp Air (for viscosity ≤ ISO 68)

FILTER A [Box 2] / FILTER B [Box 3]	
Code	Description
A	3-micron particulate Filter
B	6-micron particulate Filter
C	12-micron particulate Filter
D	25-micron particulate Filter
J	Water Filter

\* Performance will vary depending on temperature, filter combination, bypass options, hose sizes, connectors, and fluid type.

SAMPLE PORTS [Box 4]	
Code	Description
0	None
1	Standard
2	High-Viscosity
3	Push Button

RELIEF VALVE * [Box 5]	
Code	Description
0	No Relief Valve
1	Relief Valve

\* This safety relief valve prevents the pump pressure from surpassing 65 PSI.

OIL COOLER [Box 6]	
Code	Description
0	No Oil Cooler
1	Oil Cooler

TEMPERATURE GAUGE [Box 7]	
Code	Description
0	No Temperature Gauge
1	Temperature Gauge

FILTER BYPASS [Box 8]	
Code	Description
0	No Bypass
1	Filter Bypass

CUSTOM COLORS [Box 9]	
Code	Description
1	Brushed Aluminum (standard)
2	Black
3	White
4	Blue
5	Red
6	Yellow

# FlowGuard™ Fluid Handling

## Adapter Kits

*prohibit entry of dirt and moisture*



Hydraulic Adapter Kit



Drum Adapter Kit



Gearbox Adapter Kit



Tote Adapter Kit

Contaminated lubricating oil and hydraulic fluid results in excess machine wear, production downtime, and repair costs. Careful handling of lubricants can keep dirt and moisture from entering a system.

FlowGuard™ adapter kits incorporate smart technology to make fluid handling a simple task, requiring less equipment and labor while reducing system contamination.

Customize your adapter kit at [www.descase.com/flowguard](http://www.descase.com/flowguard).



Features	Benefits
Replaceable breather	Prohibits entry of particulate contamination and moisture.
Color-indicating desiccant	Changes color to indicate that replacement is needed when maximum moisture adsorption has been reached.
Single-position vacuum indicator (Hydraulic and Gearbox Adapter Kits)	Actuates before maximum filter restriction has been reached.
Sample port (Hydraulic Adapter Kit)	Allows for easy lubricant sampling while keeping contamination out.
Quick connect coupler	Eliminates messy leaks and prevents system contamination.
Hydraulic, Drum, Gearbox, and Tote Adapters	Kit options designed for a variety of applications.
Custom configuration	Allows you to design the best solution for your application. Visit us online or call (615) 672-8800 and let us help.

## How to order FlowGuard™ Adapter Kit Series:

Select the desired symbol (in the correct position) to construct a model code. Then contact your local distributor or call Des-Case if you don't see the options you need or would like additional assistance.

--	--	--	--	--	--	--	--	--	--

Box 1   Box 2   Box 3   Box 4   Box 5   Box 6   Box 7   Box 8   Box 9

The part code for all four adapter kit types will be 13 characters long.

ADAPTER TYPE [Box 1]		
Code	Description	Connection Size
HA	Hydraulic Adapter	6-Hole Flange
DA	Drum Adapter	2" NPT
GA	Gearbox Adapter	¾" NPT
TA	Tote Adapter	2" NPT

DRAIN CONNECTOR / SUCTION SIDE * [Box 2]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector

\* All are plug ends (male)

DRAIN CONNECTOR / HOSE SIZE [Box 3]	
Code	Description
3*	1/2 inch
5	3/4 inch
7	1 inch

\* Not for greater than 10 gpm.

FILL CONNECTOR / PRESSURE SIDE * [Box 4]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector

\* All are plug ends (male)

FILL CONNECTOR / HOSE SIZE [Box 5]	
Code	Description
3*	1/2 inch
5	3/4 inch
7	1 inch

\* Not for greater than 10 gpm.

FILL TUBE LENGTH [Box 6]					
Code		Description			
		Enter 2 digits (e.g. 08 for 8 inches)			
RECOMMENDED LENGTHS					
Adapter	Length	Adapter	Length	Adapter	Length
Drum	6"	Gearbox	2"	Tote	2"

SAMPLE PORT* [Box 7] (Hydraulic Adapter Only)	
Code	Description
0	None
1	Sample Port

\* Enter 0 for the Drum, Gearbox, and Tote Adapters.

DRAIN TUBE (Drum Adapter) OR SAMPLE TUBE (Hydraulic Adapter) LENGTH [Box 8]*	
Code	Description
Enter 2 digits (e.g. 08 for 8 inches)	
* Enter 00 if customizing a Gearbox or Tote Adapter.	
RECOMMENDED LENGTHS	
Adapter	Length
Drum Adapter (on a 55-gallon drum)	35"

BREATHER FILTER [Box 9]		
Code	Description	Standard for
02	3-micron particulate desiccant breather [DC-2]	Drum, Tote Adapters
03	3-micron particulate desiccant breather [DC-3]	Hydraulic Adapters
04	3-micron particulate desiccant breather [DC-4]	
25	1-micron particulate non-desiccant breather [DC-SB-25]	
35	1-micron particulate non-desiccant, oil-coalescing breather [DC-SB-35]	
H8	3-micron particulate desiccant hybrid breather* [DC-HG-8]	Gearbox Adapters

REORDER NOTE: For breather replacement, use bracketed number.

\* Not for hydraulic applications or storage tanks.

# FlowGuard™ Fluid Handling

## Top-Off Tank Kits

*filtration & storage, together*



FlowGuard™ top-off tank kits make filtration and storage easier, reducing contamination and the time it takes to get the job done.

Each kit includes a 13-gallon (49.2 L) polyethylene tank with marked fill level indicators and a built-in positive drain at the bottom. The kit also contains a DC-2 disposable standard breather and fill and drain ports with your choice of connections.

Top-off tank kits can be ordered with or without filter carts. Call customer support at (615) 672-8800 to find out if your existing filter cart is compatible.

### How to order FlowGuard™ Top-Off Tank Series:

Select the desired symbol (in the correct position) to construct a model code. Then contact your local distributor or call Des-Case if you don't see the options you need or would like additional assistance.

TK					02
Box 1	Box 2	Box 3	Box 4	Box 5	

DRAIN CONNECTOR / SUCTION SIDE * [Box 1]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector

\* All are plug ends (male)

DRAIN CONNECTOR / HOSE SIZE [Box 2]	
Code	Description
3*	1/2 inch
5	3/4 inch
7	1 inch

\* Not for greater than 10 gpm.

FILL CONNECTOR / PRESSURE SIDE * [Box 3]	
Code	Description
F	Flush Face Connector
A	ISO A Connector
B	ISO B Connector

\* All are plug ends (male)

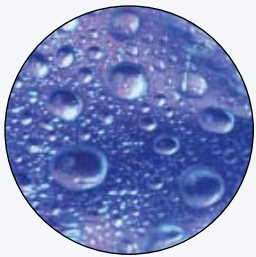
FILL CONNECTOR / HOSE SIZE [Box 4]	
Code	Description
3*	1/2 inch
5	3/4 inch
7	1 inch

\* Not for greater than 10 gpm.

## Technical Information

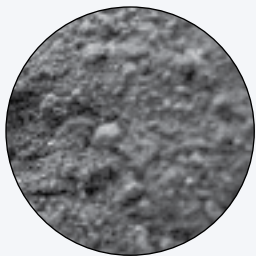
*Contamination control starts with breather protection.*

### *adsorb moisture*



By prohibiting entry of moisture using silica gel technology, breathers prevent corrosion and additive depletion inside the fluid reservoir.

### *collect airborne particles*



By prohibiting entry of particulate contamination, breathers reduce abrasive damage and sludge build-up within the fluid reservoir.

Preventing the ingress of dirt and water into the lubricant is the most effective, yet least fully utilized, method of controlling contamination.

Ingression of moisture and particles can occur with any change in the lubricant level. Even the thermal expansion and contraction of the headspace causes enough differential pressure to draw in moisture and contaminants.

Des-Case breathers are the ideal solution to keep lubricants and equipment running dry and clean. They are designed to:

- Prohibit entry of damaging contaminants
- Maintain fluid cleanliness
- Reduce oxidation rate
- Improve hydrolytic stability of oils
- Reduce equipment and lubricant wear
- Decrease unscheduled downtime
- Extend oil and equipment life

Effectively controlling, or eliminating, contamination will have a significant impact on the reliability of lubricants and machinery.

# Technical Information

## *A sample of sizing guidelines for desiccant breathers*

Please visit our sizing wizard at [www.descase.com](http://www.descase.com).

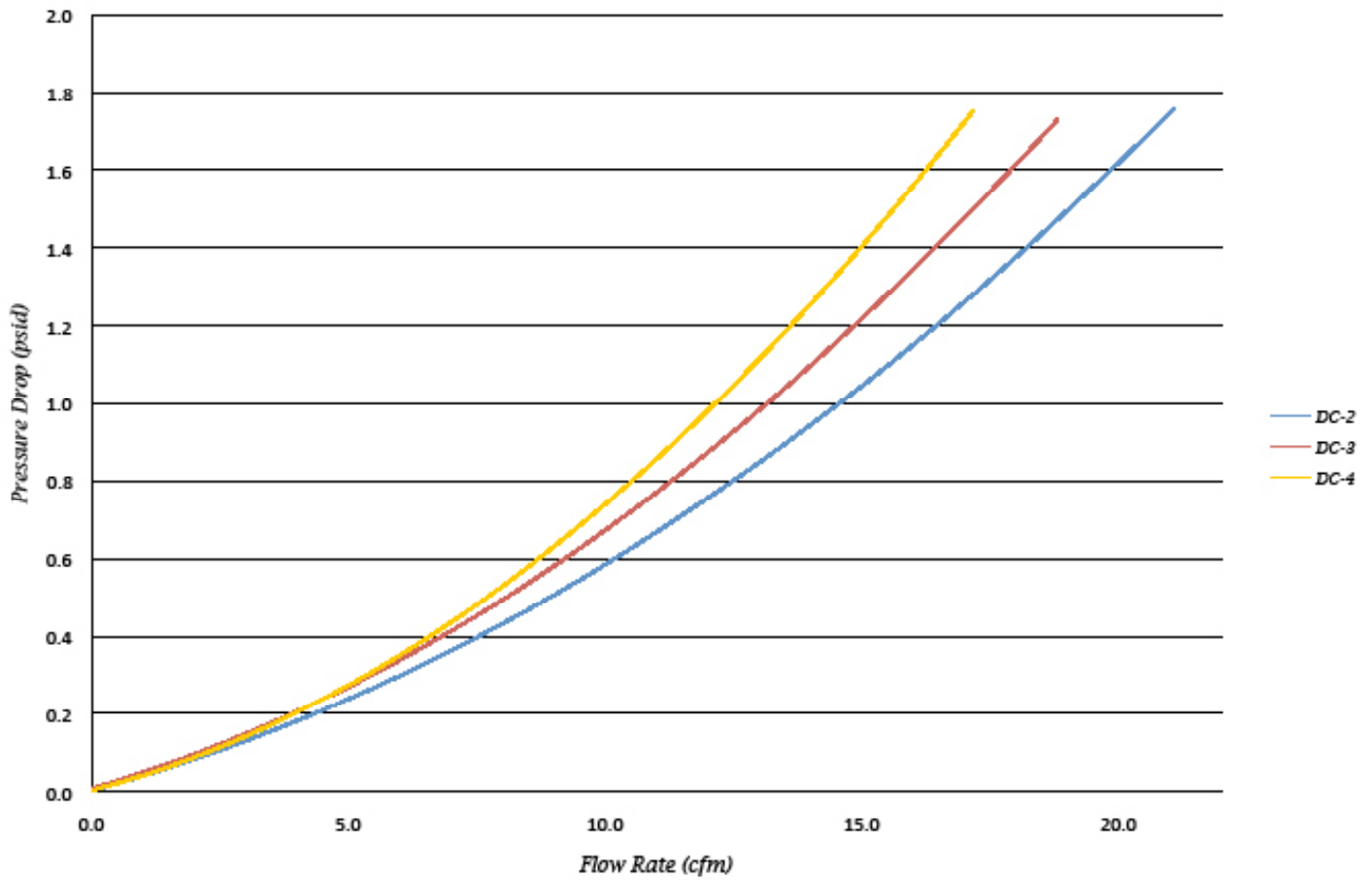
Model	Max. Flow	Adsorption	Reservoirs	Gearboxes
DC-BB	3 cfm	0.012 L	–	up to 2 gal.
DC-1	3 cfm	0.024 L	–	up to 5 gal.
DC-2	16 cfm	0.13 L	up to 20 gal.	up to 200 gal.
DC-3	16 cfm	0.23 L	up to 100 gal.	up to 350 gal.
DC-4	16 cfm	0.35 L	up to 200 gal.	up to 500 gal.

## GLOSSARY OF TERMS

Absolute filtration rating	The diameter of the largest hard spherical particle that will pass through a filter under specified test conditions. This is an indication of the largest opening in the filter elements.
Adsorption	Adhesion of the molecules of gases, liquids, or dissolved substances to a solid surface, resulting in relatively high concentration of the molecules at the place of contact.
Adsorptive filtration	The attraction to, and retention of particles in, a filter medium by electrostatic forces, or by molecular attraction between the particles and the medium
Beta ratio	A filter specification that indicates its capability to trap particles. For example, $\beta_1 > 200$ means that, for every <b>200</b> particles which are <b>1-micron</b> wide, one particle will pass the filter.
Breather	A device permitting air movement between atmosphere and the component in/on which it is installed
cfm	Cubic feet per minute. $GPM \div 7.5 = CFM$ (Err on the side of caution when sizing breather.)
Filter efficiency	Method of expressing a filter's ability to trap and retain contaminants of a given size. A filter with a Beta ratio of $\beta_1 > 200$ is 99.5% efficient at 1 micron.
Filtration	The physical or mechanical process of separating insoluble particulate matter from a fluid, such as air or liquid, by passing the fluid through a filter medium that will not allow the particulates to pass through it.
gpm	Gallons per minute.
Hydrophilic	Compounds with an affinity for water.
Oxidation	Occurs when oxygen attacks petroleum fluids. The process is accelerated by heat, light, metal catalysts and the presence of water, acids, or solid contaminants. It leads to increased viscosity and deposit formation.



*Flow Rates for DC-2, DC-3,  
and DC-4 vs. Pressure Drop*



**Contamination control =  
clean oil + breather protection.**

# Technical Information

## How to Read Life Extension Tables

Find the ISO code row that matches the current level of cleanliness of your equipment along the left side of the chart.

Find the ISO code column that matches the desired level of cleanliness along the top of the chart.

In the box where the current cleanliness row and desired cleanliness column meet, find the number that corresponds with your equipment (see example, lower-left corner of Particle Contamination table). When you achieve the desired cleanliness levels, this number is the increase in the average expected mean time between equipment failures.

Life Extension Table: Particle Contamination

		New Cleanliness Level (ISO Code)											
		20/17	19/16	18/15	17/14	16/13	15/12	14/11	13/10	12/9	11/8	10/7	
Current Machine Cleanliness (ISO Code)	20/23	5 3	7 3.5	9 4	>10 5	>10 6	>10 7.5	>10 9	>18 >10	>19 >10	>19 >10	>19 >10	
	4 2.5	4.5 3	6 3.5	8.5 4	7.5 5	8.5 6.5	10 7	>10 9	>10 10	>10 10	>10 10	>10 10	
	20/22	4 2.5	5 3	7 3.5	9 4	>10 5	>10 6	>10 7	>18 9	>19 >10	>19 >10	>19 >10	
	3 2	3.5 2.5	4.5 3	5 3.5	6.5 4	8 5	9 6	10 7.5	>10 9	>10 10	>10 10	>10 10	
	20/21	3 2	4 2.5	5 3	7 4	9 5	>10 6	>10 7	>18 8	>19 10	>19 >10	>19 >10	
	2.5 1.5	3 2	4 2.5	5 3	6.5 4	7.5 5	8.5 6	9.5 7	>10 8	>10 10	>10 10	>10 10	
	20/20	2 1.5	3 2	4 2.5	5 3	7 3.5	9 4	>10 5	>18 6	>19 8	>19 9	>19 10	
	1.7 1.3	2.3 1.5	3 2	3.7 2.5	5 3	6 3.5	7 4	8 5	10 6.5	>10 8.5	>10 10	>10 10	
	20/19	1.9 1.3	2 1.6	3 2	4 2.5	5 3	7 3.5	8 4	>18 5	>19 8	>19 7	>19 10	
	1.4 1.1	1.6 1.3	2.3 1.7	3 2	3.5 2.5	4.5 3	5.5 3.5	7 4	8 5	10 5.5	>10 8.5	>10 8.5	
	20/18	1.3 1.2	1.5 1.2	2 1.7	3 2	4 2.5	5 3	7 3.5	9 4	>19 5	>19 7	>19 10	
	1.2 1.1	1.5 1.3	1.8 1.4	2.2 1.6	3 2	3.5 2.5	4.5 3	5 3.5	7 4	9 5.5	10 8	10 8	
	20/17		1.3 1.2	1.6 1.5	2 1.7	3 2	4 2.5	5 3	7 4	9 5	>19 7	>19 9	
			1.2 1.05	1.5 1.3	1.8 1.4	2.3 1.7	3 2	3.5 2.5	5 3	6 4	8 5.5	10 7	
	16/16			1.3 1.2	1.6 1.5	2 1.7	3 2	4 2.5	5 3	7 4	9 6	>19 8	
				1.2 1.1	1.5 1.3	1.8 1.5	2.2 1.7	3 2	3.5 2.5	5 3.5	7 4.5	9 6	
	16/15				1.3 1.2	1.6 1.5	2 1.7	3 2	4 2.5	5 3	7 4.5	>19 8	
					1.2 1.1	1.5 1.3	1.8 1.5	2.3 1.7	3 2	3.5 2.5	5.5 3.7	8 5	
	17/14					1.3 1.2	1.6 1.5	2 1.7	3 2	4 2.5	6 3	8 5	
						1.2 1.1	1.5 1.3	1.8 1.5	2.3 1.7	3 2	4 2.5	6 3.5	
16/13						1.3 1.2	1.6 1.5	2 1.7	3 2	4 3.5	6 4		
						1.2 1.1	1.5 1.3	1.8 1.5	2.3 1.8	3.7 3	4.5 3.5		
15/12	Hydraulics & Diesel Engines	Rolling Element Bearings							1.3 1.2	1.6 1.5	2 1.7	3 2	4 3.5
									1.2 1.1	1.5 1.4	1.8 1.5	2.3 1.8	3 2.2
14/11	Journal Bearings & Turbo Machinery	Gearboxes & Other							1.3 1.3	1.6 1.6	2 1.8	3 2	4 3.5
									1.3 1.2	1.6 1.4	1.9 1.5	2.3 1.8	3 2
13/10										1.4 1.2	1.8 1.5	2.5 1.8	3 2
										1.2 1.1	1.6 1.3	2 1.6	3 2

Source: Noria Corporation Oil Analysis I Course Manual, 2000-2001



### Life Extension Table: Moisture

		New Moisture Level (ppm)															
		40,000		8,000		2,500		1,500		500		250		100		50	
		Filling Breath	Jurnal	Filling Breath	Jurnal	Filling Breath	Jurnal	Filling Breath	Jurnal	Filling Breath	Jurnal	Filling Breath	Jurnal	Filling Breath	Jurnal	Filling Breath	Jurnal
Current Moisture Level (ppm)	50,000	2.3	1.8	3.3	1.8	4.8	2.8	7.8	3.8	11.2	6.8	16.2	4.8	26.2	8.8	37.8	8.7
	25,000	1.8	1.8	2.3	1.8	3.3	1.8	6.4	2.4	7.8	2.8	11.2	3.8	16.2	4.8	26.2	5.8
	10,000			1.4	1.2	2.0	1.8	3.8	1.8	4.8	2.8	6.8	2.8	11.2	3.8	16.2	4.8
	5,000					1.4	1.2	2.8	1.8	3.3	1.8	4.8	2.8	7.8	2.8	11.2	3.8
	2,500							1.8	1.8	2.3	1.8	3.2	1.8	6.4	2.4	7.8	2.8
	1,000									1.4	1.2	2.0	1.8	3.8	1.8	4.8	2.8
	500											1.4	1.2	2.8	1.8	3.8	1.8
	250													1.8	1.8	2.8	1.8
100															1.4	1.2	

Source: Noria Corporation Oil Analysis I Course Manual, 2000-2001

Industry	Application	Special Considerations	Breather Recommendation
Paper Industry	Gearboxes in paper mill and wood yard	High humidity, paper dust	Desiccant breather or hybrid breather
All Industries	55-gallon storage drums	Thermal expansion/contraction	Desiccant breather
Paper Industry	Oil slinging pumps	Oil mist harmful for environment	Oil coalescing breather
Food Processing	Conveyor gearboxes	Daily wash downs	Desiccant breather/diaphragm combo
Power Generation	Hydraulic power units	Downtime is very costly	Desiccant breather
Stamping	Hydraulic units	High volume, oil misting	Oil coalescing/desiccant breather combo
Injection Molding	Hydraulic units	Moderate to high volume, potential oil misting	Desiccant breather or oil coalescing/desiccant breather combo

Maximize lubricant life with proper use of  
breathers and fluid handling equipment.