

TMR™-N₂

Highly effective water removal system for atmospheric breathing lubricant reservoirs

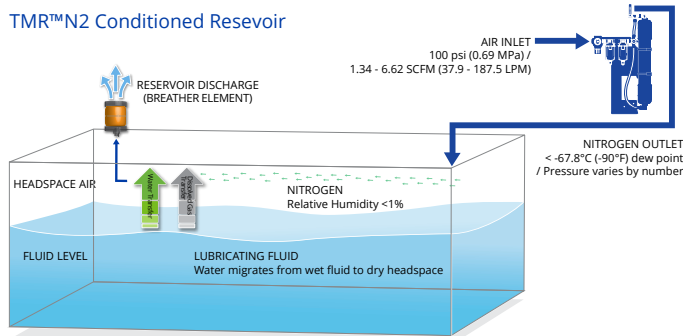
Total Moisture Removal-Nitrogen systems (TMR™-N₂) cost effectively remove all 3 forms of water from lubricants and hydraulic fluids through mass transfer which is a highly effective, non-mechanical process. TMR™-N₂ generates a constant flow of high purity N₂ which is injected into the head space of the lubricant reservoir to remove and maintain very low water levels.



hyprofiltration.com/TMRN2



TMR™N2 Conditioned Reservoir



Control water contamination.

Produced Nitrogen is vented at low flow out the breather element, eliminating the effects atmosphere has on the fluid. TMR™-N₂ systems are regulated, intrinsically safe, and have a manually adjusted flow control valve with flow meter.

Clean, dry, healthy oil.

Dry air mass transfer extracts dissolved water from the fluid and since the nitrogen introduced by the TMR™-N₂ is an inert gas, it also removes combustible gases (i.e. CO₂, C₂H₂, CO, C₂H₄, C₂H₆, CH₄, and H₂) from the oil to reduce oxidation and fluid breakdown.



Extend your fluid life.

A properly sized TMR™-N₂ is designed to remove up to 200 ppm of water per day under normal operating conditions to minimize oxidation and fluid breakdown and extend the useful life of your oil while protecting your critical components.



TMR™-N₂ Specifications

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Model	TMRN ₂ -601902	TMRN ₂ -601903	TMRN ₂ -601904	TMRN ₂ -601905 ²
Height ¹	30" (76 cm)	48" (122 cm)	48" (122 cm)	70" (178 cm)
Width ¹	20" (51 cm)	20" (51 cm)	20" (51 cm)	20" (51 cm)
Depth ¹	7" (18 cm)	7" (18 cm)	7" (18 cm)	7" (18 cm)
Weight	38 lbs (17 kg)	44 lbs (20 kg)	48 lbs (22 kg)	55 lbs (9 kg)
Inlet	¼" FNPT	¼" FNPT	¼" FNPT	¼" FNPT
Outlet	¼" FNPT	¼" FNPT	¼" FNPT	¼" FNPT
Air Consumption ³	< 1.2 SCFM	< 2.0 SCFM	< 3.6 SCFM	< 6.0 SCFM
Headspace Volume	< 15 ft ³ (< 0.42 m ³)	< 22 ft ³ (< 0.62 m ³)	< 36 ft ³ (< 1.02 m ³)	< 100 ft ³ (< 2.8 m ³)
Fluid Operating Temperature	30°F to 225°F (0°C to 105°C)	30°F to 225°F (0°C to 105°C)	30°F to 225°F (0°C to 105°C)	30°F to 225°F (0°C to 105°C)
Materials of Construction	Frame Powder coated steel			

¹Dimensions are approximations taken from base model and will vary according to options chosen.

²Ships in two pieces.

³Minimum 100 psig (6.89 barg).

TMR™-N₂ Part Number Builder

TMRN2-60190 -
 Model Special Options

Model	2	TMR™-N ₂ Nitrogen Generator for reservoir volume < 400 gal (1,500 liter)
	3	TMR™-N ₂ Nitrogen Generator for reservoir volume < 800 gal (3,050 liter)
	4	TMR™-N ₂ Nitrogen Generator for reservoir volume < 2000 gal (7,650 liter)
	5	TMR™-N ₂ Nitrogen Generator for reservoir volume < 3000 gal (11,500 liter)
Special Options	M1	Manifold to share TMR™-N ₂ with 2 reservoirs (601902 and 601903 models only)
	M2	Manifold to share TMR™-N ₂ with 2 reservoirs (601904 and 601905 models only)

TMR™-Air

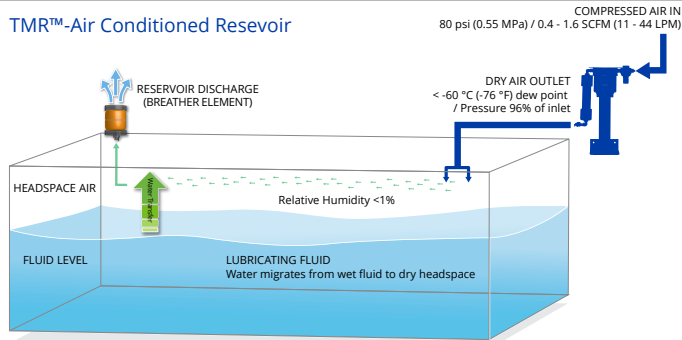
Total Moisture Removal Systems

TMR™-Air systems cost effectively remove all 3 forms of water from lubricants and hydraulic fluids through mass transfer which is a highly effective, non-mechanical process. Using TMR™-Air exploits the principle of chemical equilibrium in a gentle, energy efficiency method.



hyprofiltration.com/TMR

TMR™-Air Conditioned Reservoir



Remove water: protect your systems.

With TMR™-Air, dry air is generated at the source, providing unlimited capacity to reduce existing moisture in the reservoir and oils. The water is released from the oil to the super dry air. TMR™-Air is a maintenance solution that will maintain water at very low levels (<50 ppm total or in the ideal range between 200~300 ppm for EHC fluids), reducing the rate of lubricant break-down.

Eliminate water at its source.

Free flowing dry air is exhausted out of the breather element, reversing the typical flow configuration of reservoir air and eliminating one of the key ingress points for water and particulate contamination.



Extend your fluid life.

A properly sized TMR™-Air is designed to remove up to 100 ppm of water per day under normal operating conditions to minimize oxidation and fluid breakdown and extend the useful life of your oil while protecting your critical components.



TMR™-Air Specifications

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Height	24" (61 cm)
Width	14" (35 cm)
Depth	5" (13 cm)
Weight	21 lbs (10 kg)
Inlet	¼" FNPT
Outlet	¼" FNPT
Headspace Volume	< 36 ft³ (< 1.02 m³)
Flow Rate Manual Control with Flow Meter	0-60 SCFH (0-1680 LPH)
Preset Flow Rate	30 SCFH (840 LPH)
Air Consumption Max @ 100 psi/0.69 MPa (SCFM/LPM)	0-180 SCFH (0-5040 LPH)
Fluid Operating Temperature	30°F to 225°F (0°C to 105°C)
Materials of Construction	Frame Powder coated steel

TMR™-Air Part Number Builder

TMR-60090 -
Model Special Options

Model	4 TMR™-Air for reservoir volume ≤ 2000 gal (7,600 liter)
Special Options	M1 Manifold to share TMR™-Air with 2 reservoirs

Hy-Dry

Desiccant Breathers

Protect your uptime, critical hydraulic & lube assets and fluid life. Hy-Dry breathers are critical in Hy-Pro's Total System Cleanliness approach as a barrier preventing airborne particles and water from entering reservoirs and gearboxes.

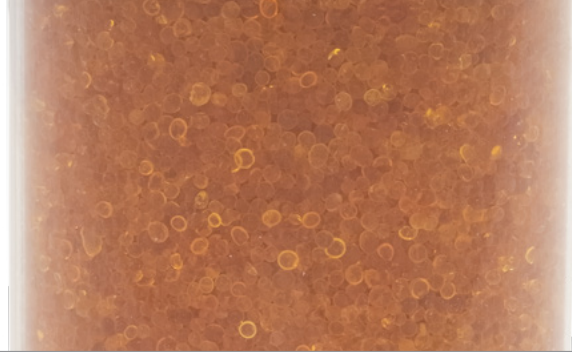


hyprofiltration.com/Hy-Dry



A breath of fresh air.

Atmospheric moisture is a continuous threat to efficient operations of your equipment and machinery. Hy-Dry Breathers utilize high capacity silica gel to remove water from the air before it can ever enter your equipment, protecting your investment and helping prevent fluid breakdown.



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Unmistakable water removal.

As Hy-Dry Breathers adsorb moisture from the air entering your system, the gold silica gel gradually changes colors to let you know it's working effectively and even give you a reminder of when it's time for replacement.

Dual contamination prevention.

Each Hy-Dry Breather is equipped with an internal 2 micron particulate filter on both ends of the silica chamber to protect your system from airborne contamination. As an added benefit, exhaust from your reservoir flushes the trapped particulate from the outer filter and back into the atmosphere, making your Hy-Dry a self-cleaning powerhouse for contamination prevention.



Keep contamination in check.

Select models of Hy-Dry breathers come with dual check valves (0.1 psi / 0.007 bar standard) to prevent outside moisture from entering and greatly extending the life of your breather.

The perfect fit for your system.

Hy-Dry Breathers come in a variety of sizes, connections, and other options designed for countless applications. Whether you're installing on a small gearbox reservoir or on-board a high vibration mobile application, there's a Hy-Dry Breather suited perfectly to fit your needs.



Total Systems Cleanliness

Used in conjunction with more robust particulate filtration, Hy-Dry Breathers are a pivotal component to achieving Total Systems Cleanliness and ensuring your equipment is protected from all forms of contamination.

HPB Disposable Cartridge Breathers



Stationary Applications

Designed for versatility, HPB Breathers provide the base for all Hy-Dry Breathers with a wide range of fluid compatibility and numerous models to fit nearly any stationary application. The high impact resistant ABS caps and clear acrylic silica chamber provide protection from industrial environments while making inspection and replacement easier than ever.



Model	HPB-31	HPB-34	HPB-100	HPB-101	HPB-102	HPB-103	HPB-108	HPB-154
Height	2"	3.25"	3.5 "	5"	8"	8"	10"	5"
	5.1 cm	8.3 cm	8.9 cm	12.7 cm	20.3 cm	20.3 cm	25.4 cm	12.7 cm
Diameter	2"	3.25"	5"	5"	5"	5"	5"	5"
	5.1 cm	8.3 cm	12.7 cm	12.7 cm	12.7 cm	12.7 cm	12.7 cm	12.7 cm
Stem Height	1.25"	N/A	1.25"	1.25"	1.25"	1.25"	N/A	1.25"
	3.2 cm	N/A	3.2 cm	3.2 cm	3.2 cm	3.2 cm	N/A	3.2 cm
Connection	1/2" FNPT	1/2" FNPT	1" Slip Fit	1" Slip Fit	1" Slip Fit	1" MNPT	2" MNPT	1" MNPT
Silica Gel	0.08 lb	0.50 lb	0.80 lb	1.40 lb	2.70 lb	2.70 lb	3.50 lb	1.40 lb
	0.04 kg	0.23 kg	0.36 kg	0.64 kg	1.22 kg	1.22 kg	1.59 kg	0.64 kg
Fluid Capacity	0.5 oz	3.1 oz	4.9 oz	8.6 oz	16.6 oz	16.6 oz	21.5 oz	8.6 oz
	14 ml	90 ml	145 ml	254 ml	490 ml	490 ml	635 ml	254 ml
Airflow	5 cfm	5 cfm	20 cfm	20 cfm	20 cfm	20 cfm	20 cfm	20 cfm
	8 m³/h	8 m³/h	34 m³/h	34 m³/h	34 m³/h	34 m³/h	34 m³/h	34 m³/h
Reservoir Flow	37 gpm	37 gpm	150 gpm	150 gpm	150 gpm	150 gpm	150 gpm	150 gpm
	140 lpm	140 lpm	568 lpm	568 lpm	568 lpm	568 lpm	568 lpm	568 lpm
Particulate Efficiency	2 μ _{IC} >1000	2 μ _{IC} >1000	2 μ _{IC} >1000	2 μ _{IC} >1000	2 μ _{IC} >1000	2 μ _{IC} >1000	2 μ _{IC} >1000	2 μ _{IC} >1000



HPBC Integrated Check Valve Breathers

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High Humidity & Dust Applications

Taking our HPB Disposable Breathers even further, HPBC Disposable Breathers feature integrated intake and exhaust check valves to close the system from the atmosphere until airflow is required and extend the life of the breather. The reusable top cap that houses the check valves provides incredible ease of use in replacing spent cartridges and protects new breathers from the moment you install them.



Model	HPBC-100	HPBC-101	HPBC-102	HPBC-121	HPBC-122	HPBC-503	HPBC-505
Height	6.25" 15.9 cm	7" 17.8 cm	10" 25.4 cm	7" 17.8 cm	10" 25.4 cm	7" 17.8 cm	10" 25.4 cm
Diameter	3.25" 8.3 cm	5" 12.7 cm	5" 12.7 cm	5" 12.7 cm	5" 12.7 cm	5" 12.7 cm	5" 12.7 cm
Stem Height	N/A N/A	1.25" 3.2 cm	1.25" 3.2 cm	1.625" 4.1 cm	1.625" 4.1 cm	1.375" 3.5 cm	1.375" 3.5 cm
Connection	1/2" FNPT	1" Slip Fit	1" Slip Fit	2" MNPT	2" MNPT	1" MNPT	1" MNPT
Check Valve In	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar
Check Valve Out	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar
Silica Gel	0.8 lb 0.36 kg	1.4 lb 0.64 kg	2.7 lb 1.22 kg	1.4 lb 0.64 kg	2.7 lb 1.22 kg	1.4 lb 0.64 kg	2.7 lb 1.22 kg
Fluid Capacity	4.91 oz 145 ml	8.6 oz 254 ml	16.56 oz 490 ml	8.6 oz 254 ml	16.56 oz 490 ml	8.6 oz 254 ml	16.56 oz 490 ml
Airflow	10 cfm 17 m³/h	20 cfm 34 m³/h	20 cfm 34 m³/h	20 cfm 34 m³/h	20 cfm 34 m³/h	20 cfm 34 m³/h	20 cfm 34 m³/h
Reservoir Flow	75 gpm 284 lpm	150 gpm 568 lpm	150 gpm 568 lpm	150 gpm 568 lpm	150 gpm 568 lpm	150 gpm 568 lpm	150 gpm 568 lpm
Replacement Cartridge	HPB-143	HPB-341	HPB-342	HPB-343	HPB-344	HPB-345	HPB-346
Particulate Efficiency	2 μ _{cl} >1000	2 μ _{cl} >1000	2 μ _{cl} >1000	2 μ _{cl} >1000	2 μ _{cl} >1000	2 μ _{cl} >1000	2 μ _{cl} >1000

HPBCR & HPBR Extreme Duty Breathers



High Vibration, Dust, & Humidity Applications

Featuring a reusable metal reinforced based with male NPT threads, HPBCR and HPBR Breathers are ideal for fluid management applications that require protection from extreme conditions. HPBCR models include intake and exhaust check valves in a reusable top cap to prevent unnecessary air flow and economical replacement of the desiccant cartridges. Perfect for high vibration applications such as mobile, wind power, mining and many others.



Model	HPBCR-101	HPBCR-102	HPBR-101	HPBR-102
Height	8.5 " 21.6 cm	11.5 " 29.2 cm	6.5" 16.5 cm	9.5" 24.1 cm
Diameter	5.2 " 13 cm	5.2" 13 cm	5.2" 13 cm	5.2" 13 cm
Stem Height	1" 2.5 cm	1" 2.5 cm	1" 2.5 cm	1" 2.5 cm
Connection	1" MNPT	1" MNPT	1" MNPT	1" MNPT
Check Valve In	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar
Check Valve Out	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar	0.1 psi 0.007 bar
Silica Gel	1.4 lb 0.64 kg	2.7 lb 1.22 kg	1.4 lb 0.64 kg	2.7 lb 1.22 kg
Fluid Capacity	8.6 oz 254 ml	16.6 oz 490 ml	8.6 oz 254 ml	16.6 oz 490 ml
Airflow	25 cfm 42 m³/h	25 cfm 42 m³/h	25 cfm 42 m³/h	25 cfm 42 m³/h
Reservoir Flow	187 gpm 708 lpm	187 gpm 708 lpm	187 gpm 708 lpm	187 gpm 708 lpm
Replacement Element	HPB-351	HPB-352	HPB-301	HPB-302
Particulate Efficiency	2μ _{Cl} >1000	2μ _{Cl} >1000	2μ _{Cl} >1000	2μ _{Cl} >1000



HPBA Reservoir Adapters

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Model	Element Connection	Reservoir Connection	
HPBA-101	1" Slip Fit	Flange No Mounting Holes	
HPBA-102	1" Slip Fit	1" MNPT	
HPBA-103	1" Slip Fit	3/4" MNPT	
HPBA-104	1" Slip Fit	Bayonet	
HPBA-105	1" Slip Fit	1" - 12 UNF	
HPBA-106	1" Slip Fit	1.5" - 16 UNF	
HPBA-110	1" Slip Fit		
HPBA-114	1" Slip Fit	Flange 6 ANSI Mounting Holes	
HPBA-201	1" Slip Fit	1.125" - 16 UNF	
HPBA-403	3/8" MNPT	1/2" MNPT	
HPBA-G31	1" Slip Fit	G 1.25" - 11 BSPP	

BF Breathers

High Flow Particulate Breathers

Control airborne contamination and extend the life of other filters in your system. BF Breathers go beyond ineffective filler/breather caps to protect your system with high capacity, high efficiency pleated glass media elements. Combine with Hy-Pro Filter Assemblies and Fluid Conditioning Equipment for the ultimate in Total Systems Cleanliness.



hyprofiltration.com/Breathers



Let it breathe.

The same Hy-Pro Dualglass you trust to remove particulate from your hydraulic and lube oils pulls double duty in the BF Breathers by removing airborne contamination from incoming air as your reservoir levels change. Designed to withstand the constant flexing of hydraulic systems, Hy-Pro filter media is the hands-down best at capturing and preventing contaminants from ever entering your systems.

Tells the tale of your system.

BF Breathers are equipped with tattle-tale gages that capture the maximum vacuum level caused by rising and falling fluid levels to let you know exactly how your system is operating. And unlike those nagging kids, you'll be more than grateful for this tattle-tale.



The perfect fit.

Whether you're operating reservoirs with high cylinder return flows or large extrusion presses, BF Breathers offer the perfect fit for your system. And with numerous standard connections, you can set yours up straight from the box - no adapters required.

BF Specifications¹

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Model	BF*256	BF*2511	BF*2517	BF*36	BF*311	BF*317
Height	12.4 in 31.5 cm	18.1 in 46.0 cm	23.7 in 60.2 cm	12.4 in 31.5 cm	18.1 in 46.0 cm	23.7 in 60.2 cm
Diameter	8.9 in 22.6 cm	8.9 in 22.6 cm	8.9 in 22.6 cm	8.9 in 22.6 cm	8.9 in 22.6 cm	8.9 in 22.6 cm
Weight	21 lb 9.5 kg	22 lb 10.0 kg	28 lb 12.7 kg	25 lb 11.3 kg	26 lb 11.8 kg	32 lb 14.5 kg
Air Flow	1320 gpm 176 cfm 4997 lpm	1450 gpm 194 cfm 5489 lpm	1580 gpm 211 cfm 5981 lpm	1825 gpm 244 cfm 6908 lpm	2100 gpm 281 cfm 7949 lpm	2375 gpm 317 cfm 8990 lpm
Operating Temperature	30°F to 225°F (0°C to 105°C)					
Materials of Construction	Tube Assembly Plated steel		Shell Powder coated steel		Element End Caps + Handle Synthetic – incinerates @ 1100°F (593°C)	

¹Specifications are approximations taken from base models (Connection options B**/N**) and will vary according to options chosen. Connection option A** dimensions will vary slightly. Contact Hy-Pro for exact specifications.

BF Part Number Builder

BF -

Connection Length Media Seal

Connection	A2 2" ANSI flange A3 3" ANSI flange B15 1.5" BSPT B2 2" BSPT B25 2.5" BSPT B3 3" BSPT N15 1.5" NPT N2 2" NPT N25 2.5" NPT N3 3" NPT
Length	6 6" (15 cm) nominal length filter 11 11" (28 cm) nominal length filter 17 17" (38 cm) nominal length filter
Media Selection	G8 Dualglass 1M 0.1μ absolute 3M 0.3μ absolute 6M 0.6μ absolute 10M 1.0μ absolute 25M 2.5μ absolute
Seals	B Nitrile (Buna) V Fluorocarbon E-WS EPR seals + stainless steel support mesh

Spin-On Breathers

G8 Dualglass Particulate Breathers + Adapters

Control solid contaminant ingress with high capacity, high efficiency pleated glass elements. Spin-On Breathers combine ease of installation and adaptability to prevent airborne contamination and extend the life of other filters in your system.



hyprofiltration.com/Breathers



Contamination Prevention 101.

Fluid contamination is the root cause of most hydraulic system failures and while most systems today utilize oil filters, it is not uncommon for airborne contamination to go overlooked altogether. By preventing airborne contamination ingress, Spin-On Breathers help reduce strain on system filters to extend the life of your fluids and protect your critical components.

Plug and play.

With common threaded and bayonet style adapters and numerous media options, Spin-On Breathers are a quick way to replace ineffective filler/breather caps right out of the box.



Total Systems Cleanliness.

Combining Spin-On Breathers with other Hy-Pro Fluid Contamination Solutions will yield a clean, healthy, and reliable hydraulic or lubrication system.



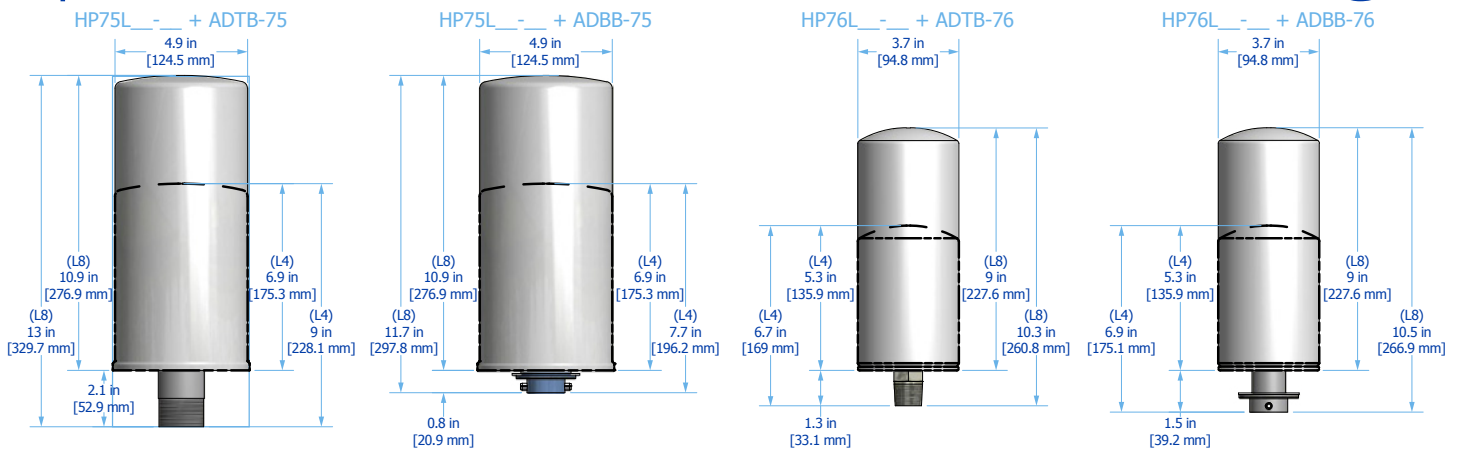
Spin-On Breather Adapters

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Adapter Model	ADBB-75	ADBB-76	ADTB-75	ADTB-76	ADTB-76V
Material of Construction	Aluminum	Aluminum	Plated steel	Plated steel	Plated steel
Overall Length	2.58" (65.53 mm)	2.38" (60.45 mm)	3.70" (93.98 mm)	1.75" (44.45 mm)	2.48" (62.99 mm)
Element Thread Length	0.70" (17.78 mm)	0.70" (17.78 mm)	0.50" (12.7 mm)	0.30" (7.62 mm)	0.35" (8.89 mm)
Element Connection	1½" - 16 UN (HP75 series spin-on)	1" - 12 UNF-2A (HP76 series spin-on)	1½" - 16 UN (HP75 series spin-on)	1" - 12 UNF-2A (HP76 series spin-on)	1½" - 16 UNF (HP76 series spin-on)
Reservoir Connection	1.87" pin length 1.40" diameter boss	1.87" pin length 1.40" diameter boss	1¼" NPT	¾" NPT	¾" NPT
Seals	Nitrile (Buna)	Nitrile (Buna)	Nitrile (Buna)	Nitrile (Buna)	Nitrile (Buna)

Spin-On Breather Installation Drawings



Spin-On Breather Part Number Builder

HP - -B

Flow Rate Media Selection

Flow Rate

75L4 290 gpm (1097 lpm), 39 cfm (66 m³/h)

75L8 290 gpm (1097 lpm), 39 cfm (66 m³/h)

76L4 212 gpm (802 lpm), 28 cfm (47 m³/h)

76L8 212 gpm (802 lpm), 28 cfm (47 m³/h)

Media Selection

G8 Dualglass

1M 0.1µ absolute air filtration

3M 0.3µ absolute air filtration

6M 0.6µ absolute air filtration

12M 1.0µ absolute air filtration

25M 2.2µ absolute air filtration

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