BALDWIN FILTERS

- Lube
- Air
- Fuel
- Hydraulic
- Transmission
- Coolant

SECTION C

The Baldwin Edge

Design - Coverage - Quality - Service

BALDWIN FILTERS®

BALDWIN FILTER

Warranty

Baldwin warrants each new Baldwin filter properly installed in a recommended application to be free from defects in material and workmanship for the filter service interval recommended by the equipment manufacturer. Any Baldwin filter found upon inspection to have failed within the warranty period will be replaced free of charge, and if the filter damages the engine or machinery on which it is installed, Baldwin will repair and restore the engine or machine to the condition existing prior to such damage.

If you are ever advised by a servicing dealer that your warranty can be affected by the installation of a Baldwin filter, obtain that assertion in writing and forward immediately to the Vice President - Marketing at Baldwin for proper action.

This is an exclusive warranty and all other warranties and remedies under law are excluded. Baldwin shall not be liable for any incidental or consequential damages beyond engine or machine repairs as stated above.

FILTER ABBREVIATIONS

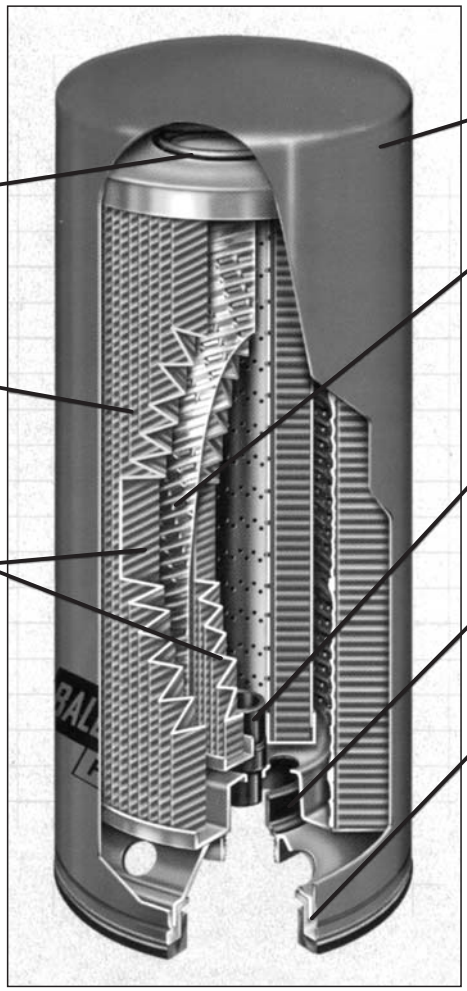
B	Spin-on or Bag-Type Filter
BD	Dual-Flow Lube Spin-on
BF	Spin-on, Can Type or In-line Fuel Filter
BT	Spin-on Lube or Hydraulic/Transmission Filter
BW	Coolant Spin-on with Chemicals
C	Cotton Lube Element
H	Pall Type Hydraulic Element
HSG	Air Filter Housing
LF	Lube Filter
LL	Long Life Air Filter Element
P	Paper Lube or Hydraulic Element
PA	Paper Air Element
PF	Paper Fuel Element
PT	Paper Lube or Hydraulic Element
RS	Radial Seal Air Filter

Testing Proves Baldwin Filters' BD103 Outperforms LF3000 Stratapore™

Steel Coil Spring keeps its shape which maintains a positive load pressure on the adapter seal.

Cellulose/Synthetic Blend Media specifically developed to increase structural strength, efficiency and contaminant capacity.

Patented Series Design provides up to 43 percent more filtering surface to increase contaminant holding capacity and element life. Full-flow and by-pass elements run almost the full length of the filter enclosure.



Heavy-Duty, All-Metal Housing provides unequaled burst-and pulse-withstanding strength.

Spiral Center Tube with fluted ribs adds strength to resist pressure surges. Perforated holes allow for maximum flow-through.

Radial Post Seal separates full-flow portion of filter from by-pass.

Full-Flow Spud Seal separates clean oil from dirty return oil.

Heavy-Duty Baseplate is joined to the can with a double-rolled, tuck lock seam to resist leakage due to high pressure.

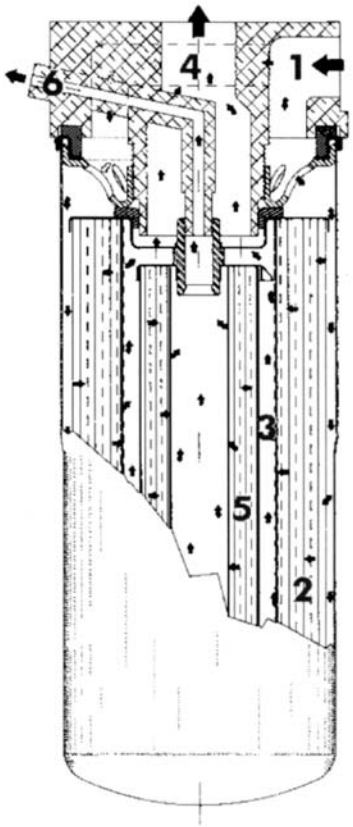
Baldwin offers a complete line of heavy-duty lube filtration products.

SAE J806 laboratory tests prove Baldwin Filters' BD103 surpasses the LF3000 in contaminant holding capacity and contaminant removal efficiency. The unique integral series design of the BD103 provides maximum filteration while the heavy-duty construction ensures dependable operation. Tests and more than 20 billion field miles substantiate the BD103's superior performance claims.

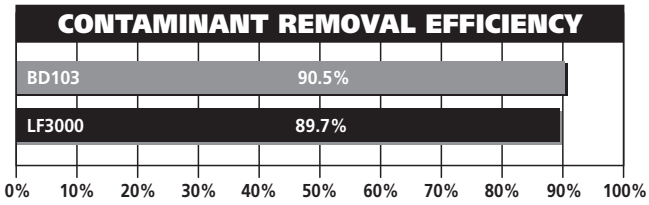
BALDWIN FILTERS®

Heavy-Duty Performance

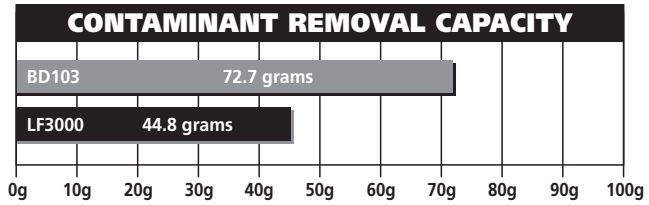
BD103 Continues to Provide More Efficiency and Life Than the LF3000 With Stratapore™ Media



The results speak for themselves. Extensive life and efficiency tests and billions of miles of actual use prove the BD103 outperforms the LF3000 (see charts below). The patented "series" design and the cellulose/synthetic blend media are central to the filter's increased contaminant holding capacity and longer element life. In the BD103, all oil passes through the full-flow element instead of just part of it as with "parallel" designs. The full-flow/by-pass technology of the BD103 offers up to 43 percent more full-flow surface for greater contaminant holding capacity. Higher efficiency means less damage-causing contaminants pass through the filter to sensitive components, leading to longer and more efficient system life. Increased capacity extends filter life without decreasing filter efficiency.



SAE J806 Test: Efficiency Time Weighted Average

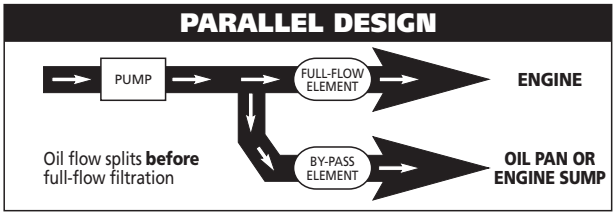


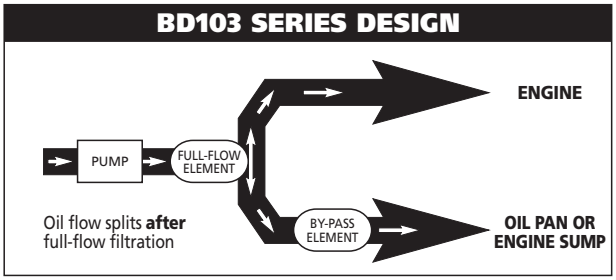
SAE J806 Test

HOW THE BD103 WORKS

1. **All dirty engine oil enters here.**
   Baldwin's internal "series" design places the by-pass element inside the full-flow element instead of stacking the two elements as in standard "parallel" designs.

   This allows both elements to occupy almost the full length of the filter housing and provides additional filtration area.
2. **Oil passes through full-flow element.**
   All oil passes through full-flow element instead of just part of the oil as with other combination full-flow/by-pass designs.
3. **Oil flow is divided.**
   Full-flow element contains glass impregnated cellulose media (glass/polyester/cellulose blend).
4. **Majority of oil proceeds to the engine to provide lubrication.**
5. **Remainder of oil undergoes additional filteration in the by-pass element.**
6. **Oil from by-pass element returns to the engine sump.**





QS 9000
ISO 9001
QUALITY SYSTEM CERTIFIED

Heavy-Duty Performance BALDWIN FILTERS®

Baldwin High Velocity Dual-Flow™ improves on OEM design

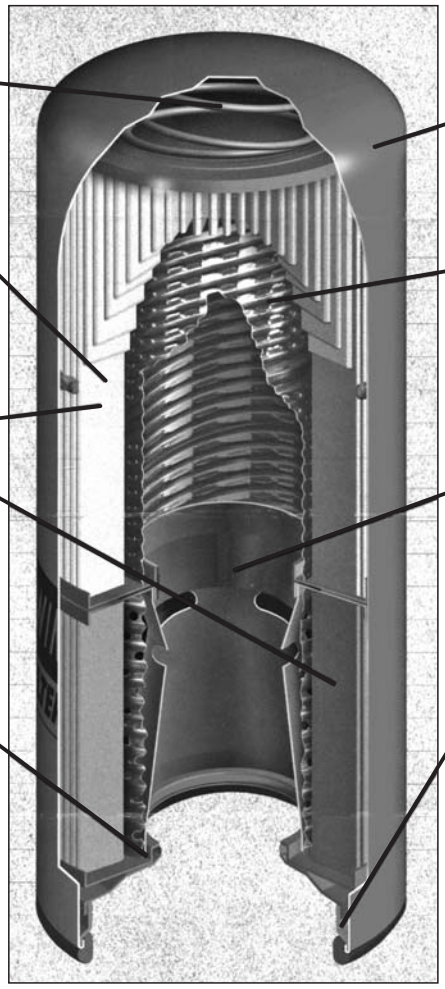
Replaces OEM Venturi™ Filters for Cummins Engines

Steel Coil Spring keeps its shape, maintaining a positive load pressure on the elements.

100% Synthetic Microglass™ Media specifically developed to increase structural strength, efficiency and contaminant capacity.

Patent Pending Design provides maximum contaminant holding capacity and contaminant removal efficiency, while minimising flow restriction during operation and cold start-ups..

Heavy-Duty Steel Retainer and End Cap are welded together to prevent the post seal from dislodging.



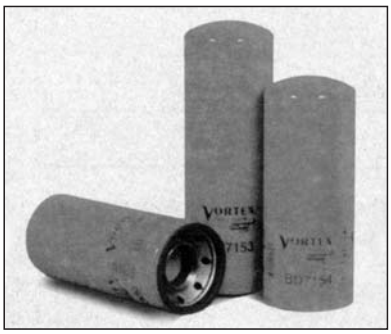
Heavy-Duty, All-Metal Housing provides unequaled burst- and pulse-withstanding strength.

Spiral Wound Louvered Centertube with fluted ribs allows for maximum flow and adds strength to resist pressure surges.

High Velocity Dual-Flow Nozzle uses a venturi-type cone to balance the flow between the elements, takes advantage of the positive filtering properties of each.

Heavy-Duty Steel Baseplate is joined to the can with a J-lock seam, reducing the possibility of leakage due to high pressure.

Illustration is representative of the BD7153 and BD7154. The BD7309 utilises a proven steel baseplate with a double-rolled, tuck lock seam.



Baldwin Filters' offers a line of Vortex Dual-Flow lube filteration products.

Baldwin Filters' High Velocity Dual-Flow lube filters provide improved engine protection during extended oil drain intervals, high idle time and harsh operating conditions. ISO 4548-12 laboratory tests, performed per Cummins Engineering Standard 10765, prove Baldwin Filters' High Velocity Dual-Flow design surpasses the OE in contaminant removal efficiency and in contaminant holding capacity. The patent pending design of the High Velocity Dual-Flow filters provides maximum filteration, while the heavy-duty construction insures dependable operation. For performance, strength and value, Baldwin is your best choice in aftermarket filtration.

BALDWIN FILTERS®

Heavy-Duty Performance

Dual-Flow Filters For Cummins Engines

Baldwin Filters' High Velocity Dual-Flow™ line includes three new patent pending dual-flow lube filters to be used on Cummins ISM, IXS and Series 600 engines as replacements for the Fleetguard Venturi™ filter line.

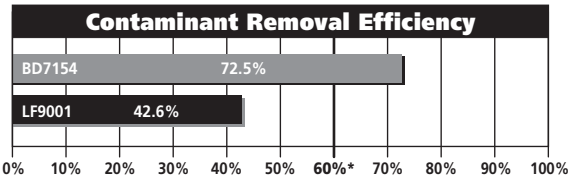
There are differences between standard dual-flow lube spin-on filters and the High Velocity Dual-Flow designs.

High Velocity Dual-Flow spin-ons have one inlet and one outlet. Oil flowing through the filter is sent directly to the engine to protect vital engine components, rather than a portion being returned to the sump as with conventional dual-flow filters.

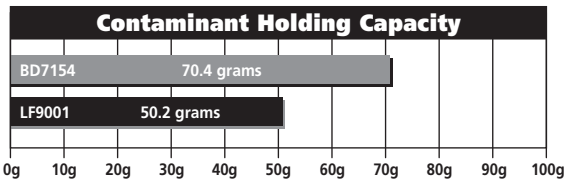
The High Velocity Dual Flow spin-on design is also superior to standard full-flow/by-pass designs in that a larger portion of the flow travels through the high efficiency element, removing more small contaminants. In traditional full-flow/by-pass designs only a small percentage of flow, 10% or less, travels through the high efficiency element.

This style of filter will be used on more Cummins applications in the future.

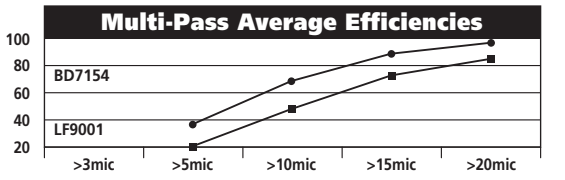
BD7154 Performance Specifications



ISO 4548-12 Test: Flow Rate 28 gpm, 100°F, Termination 10.2 psid. Efficiency time weighted average at 10 microns.
*** Cummins Engine Standard 10765 minimum efficiency = 60.0%**

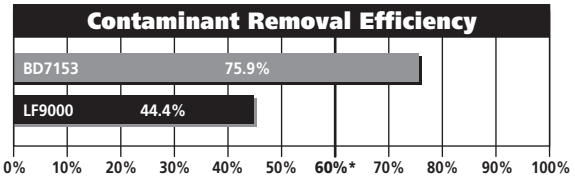


ISO 4548-12 Test

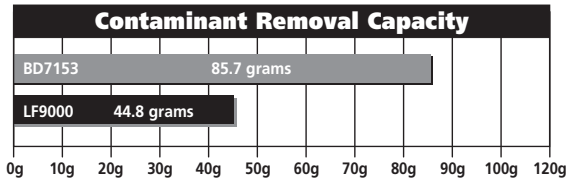


Particle Size (microns)

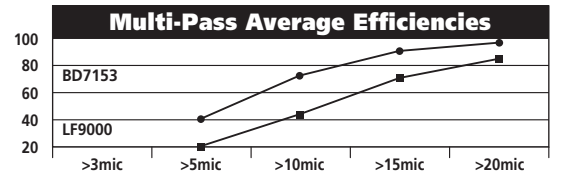
BD7153 Performance Specifications



ISO 4548-12 Test: Flow Rate 39.6 gpm, 100°F, Termination 10.2 psid. Efficiency time weighted average at 10 microns
*** Cummins Engine Standard 10765 minimum efficiency = 60.0%**

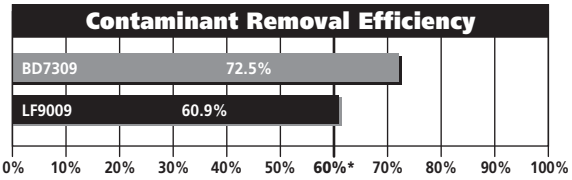


ISO 4548-12 Test

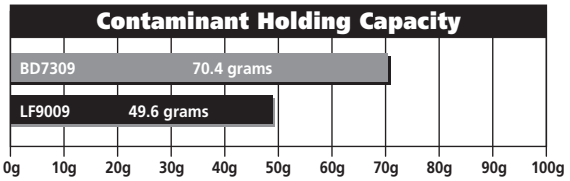


Particle Size (microns)

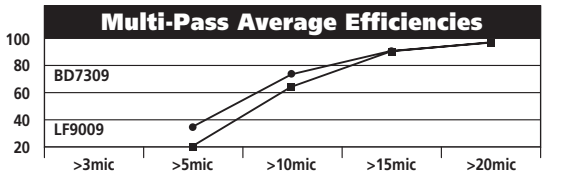
BD7309 Performance Specifications



ISO 4548-12 Test: Flow Rate 28 gpm, 100°F, Termination 10.2 psid. Efficiency time weighted average at 10 microns.
*** Cummins Engine Standard 10765 minimum efficiency = 60.0%**



ISO 4548-12 Test



Particle Size (microns)

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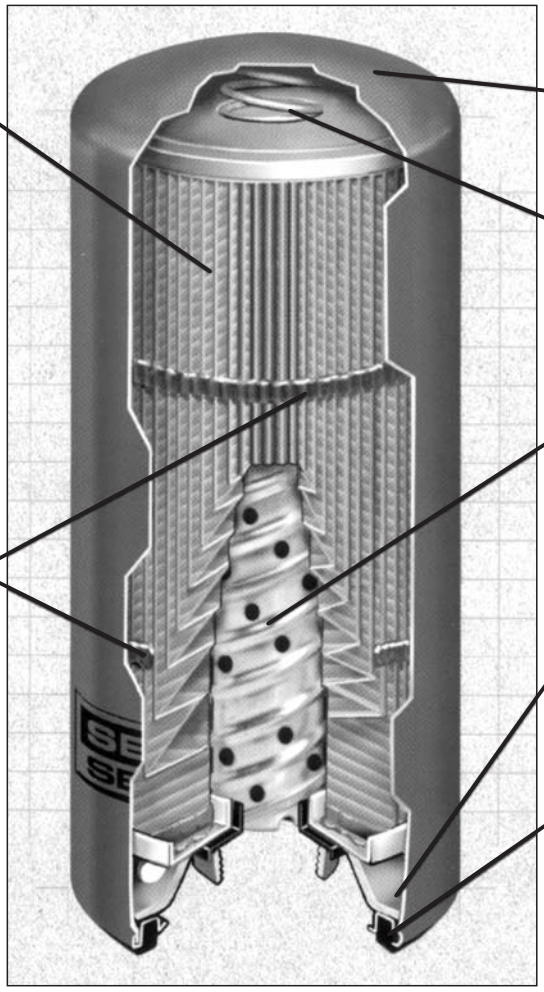
Heavy-Duty Performance BALDWIN FILTERS®

Baldwin Severe Service Filters Outperform Synthetic Media Filters

High Strength Cellulose Blend Media offers superior contaminant-holding capacity when compared to glass or synthetic media. This high capacity ensures low restriction, preventing premature by-pass valve opening. By eliminating the need for wire screen support, blended cellulose also allows for more media surface area.

Two Evenly-Spaced Glue Bead Supports help ensure flow through the entire pleat surface and reduce media fatigue between extended oil changes.



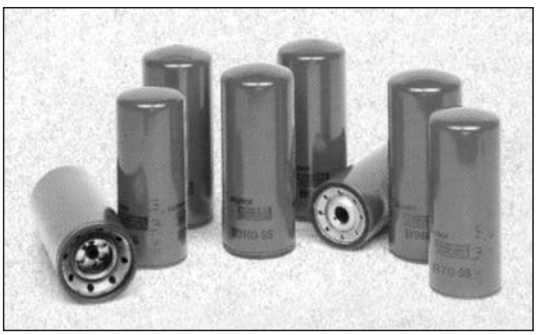
Heavy-Duty, All-Metal Housing provides unequaled burst-and pulse-withstanding strength.

Steel Coil Spring keeps its shape to maintain a positive load pressure on the adapter seal.

Spiral Centertube with fluted ribs resists pressure surges. Perforated holes allow for maximum flow-through.

Heavy-Duty Baseplate is joined to the can with a double-rolled, tuck lock seam to resist leakage due to high pressure.

High Strength Gasket resists heat and corrosion for extended seal life.



Baldwin offers a complete line of heavy-duty Severe Service lube filters.

Baldwin Filters' Severe Service lube filters provide improved engine protection throughout extended oil drain intervals, high idle time and harsh operating conditions. Severe Service filters outperform lube filters with synthetic or glass media and are more affordable, making them the market's best value.

BALDWIN FILTERS®

The Heavy-Duty People

Severe Service Lube Filters Offer Superior Performance For Extended Service Applications

The best value in extended service lube filters carries the Baldwin Filters name. Baldwin's Severe Service line utilizes cellulose media blended with glass and polyester fibres to provide exceptional performance and affordability, making it a better choice than lube filters with synthetic media. Tests prove Baldwin Severe Service filters have far greater contaminant-holding capacity and equal or nearly the same efficiency as synthetic media lube filters. Increased capacity extends filter life without decreasing filter efficiency.

Study the test data and look at costs. Severe Service lube filters are just the hard-working value you need for extended service applications.

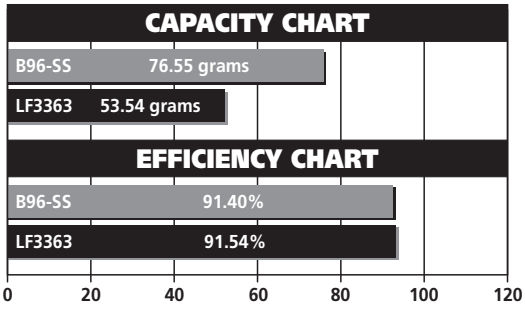
Designed for Maximum Performance

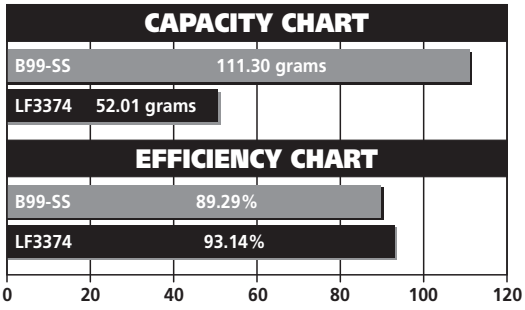
- Self-supporting media allows more filter media surface per element which increases filter life.
- Glue bead supports hold pleats firmly in place reducing media fatigue between extended oil changes.
- Heavy-duty housing provides unequaled burst-and pulse-withstanding strength.
- Spiral centertube resists pressure surges and allows maximum flow-through.
- Heavy-duty baseplate and sealing gasket are designed to be leak, heat and corrosion resistant through longer use intervals.

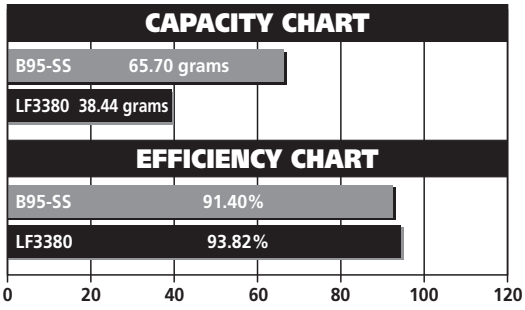
Tests Prove Performance Superiority

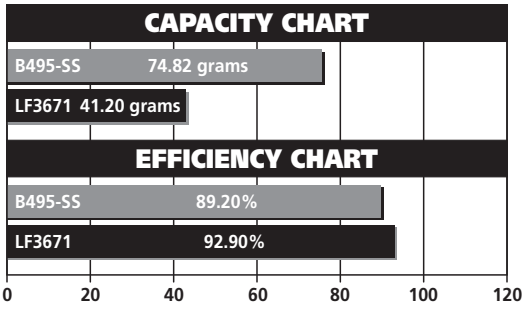
Baldwin Severe Service Filters vs. Leading Competitor's Synthetic Media Filters

SAE J806 Test









QS 9000 ISO 9001 QUALITY SYSTEM CERTIFIED

BALDWIN FILTERS®

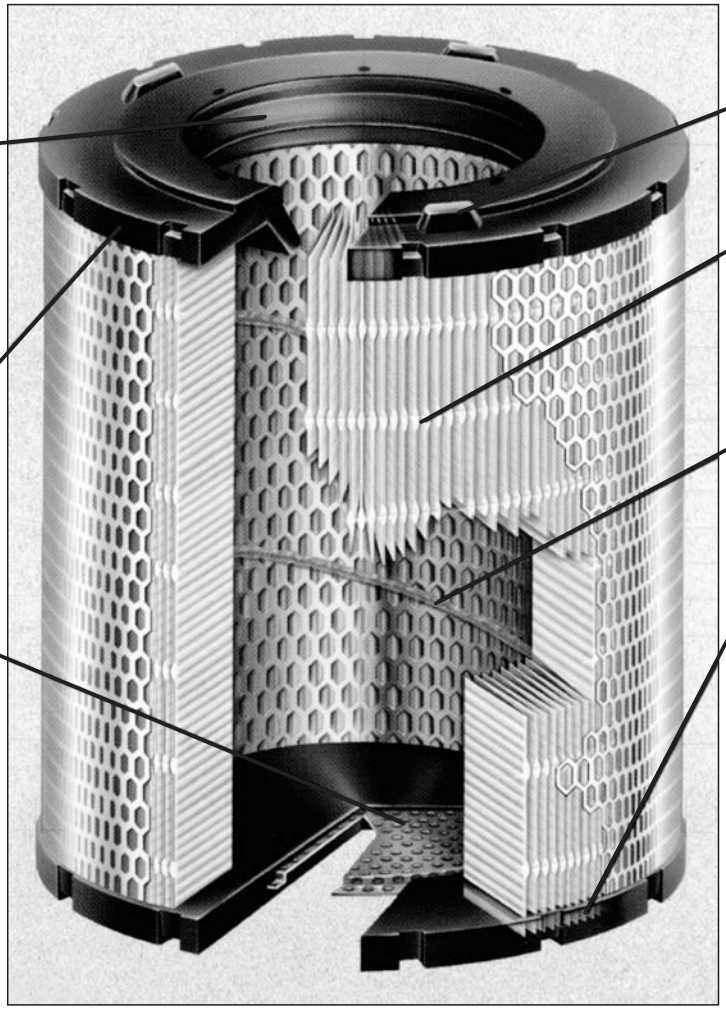
Heavy-Duty Performance

Testing Proves Baldwin's Radial Seal Air Filters Outperform OEM Filters

Heavy-Duty Radial Seal Gasket formed from special nitrile rubber compound. Will not degrade under temperature extremes, changes in restriction or vibration.

Flexible Outer Edges allow deflection for easy insertion and removal in housings which have minimal clearance.

Heavy-Duty End Cap Construction. Center portion specially reinforced to prevent constant flexing and potential failure during changes in intake pressure.

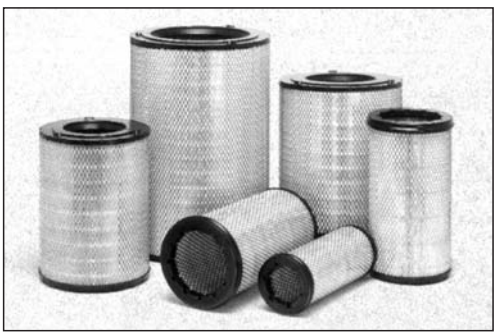


Special Lugs hold filter securely in place to prevent vibration.

PermaPleat Construction provides even pleat spacing to prevent bunching and ensure maximum element life.

Spiral Glue Binding provides added pleat stability to optimize media effectiveness.

More Filtration Surface is provided by using a special plastisol binder which does not extend into the path of air flow.



Baldwin Filters offers a complete line of heavy-duty Radial Seal air filters.

SAE J726 laboratory tests prove Baldwin's Radial Seal air filters outperform OEM radial seal air filters. Unique design advantages not only improve strength and ease of service, but contaminant holding capacity and removal efficiency as well. These advantages, plus heavy-duty construction, make Baldwin Radial Seal air filters the best choice as the aftermarket replacement for popular applications.

BALDWIN FILTERS®

The Heavy-Duty People

Field And Lab Testing Show The Baldwin Radial Seal Design To Be Superior

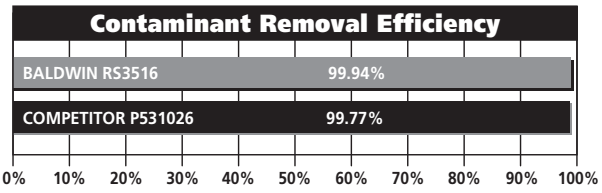
Baldwin Engineering developed our patented Radial Seal filter utilizing time tested materials, such as nitrile rubber gaskets and plastisol elastomers, to seal the ends of the filter pleat packs. The nitrile gasket assures a consistent sealing diameter in a variety of conditions, much like an O-Ring seal. Lab tests using an environmental chamber showed the gasket maintained a seal in extreme temperatures from -20 degrees Fahrenheit to 250 degrees Fahrenheit. Additional tests for seal integrity were also conducted, utilizing a mechanical vibration stand simulating actual application on a piece of heavy equipment. The filters were subjected to 10 million cycles of vibration, then put on a test bench to check for mechanical failure that could lead to dirt bypass. The Baldwin Radial Seal filters passed all the lab tests with flying colours.

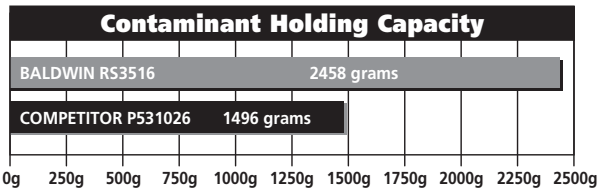
The true measure of a filter, however, is how it performs in the field. Extensive field testing was performed in severe applications, including construction equipment in the southwest desert, front end loaders operating in the cold midwest winter and buses operating in high heat, high idle time in California. It was concluded that in field and lab testing, the Baldwin Radial Seal design had a sealing surface superior to any product on the market today.

Baldwin has also performed extensive life and efficiency tests on Radial Seal filters. We use industry standard tests outlined by the Society of Automotive Engineers to determine the dirt holding capacity and the efficiency of the filter in removing contaminants from the air stream. Listed below are two typical Radial Seal filters and their performance in comparison to the leading competition. Baldwin equaled or bettered the competitive filters in removal efficiency and capacity. Great capacity translates into longer filter life, without decreasing filter efficiency. Because less damage-causing contaminates pass through the filter to sensitive engine comonents, Baldwin's higher efficiency also translates into longer and more efficient system life.

This exceptional balance of filter durability, efficiency and capacity is the result of combining high quality components with rigorous testing to offer the best performing filters available on the market today. All Baldwin Radial Seal filters are designed to meet or exceed OEM performance requirements.

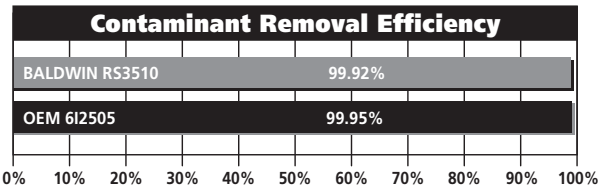
Baldwin vs. Leading Competitor

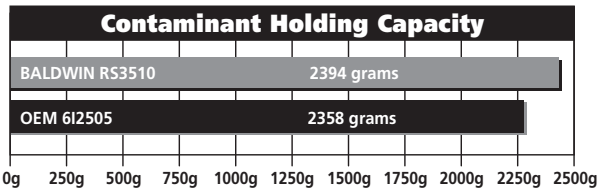




SAE J726 Test: (Flow Rate 650 CFM, PTI Fine Test Dust, Termination at 30" of water)

Baldwin vs. OEM





SAE J726 Test: (Flow Rate 1000 CFM, PTI Fine Test Dust, Termination at 30" of water)

QS 9000
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QUALITY SYSTEM CERTIFIED

BALDWIN FILTERS®

Heavy-Duty Performance

Protect your engine - First line of defence... Restriction Gauges

Your air intake system is different from lube of fuel filteration. Those filters get multiple chances at removing the contaminant. Your air intake filter only has one opportunity to do its job

- The most reliable source for measuring air filter life
- Fewer filter servicing and reduced labour costs
- Reduced risk of damage from over servicing
- Less down and longer engine life

Restriction gauges have become standard on many types of equipment. They work by measuring the amount of vacuum created when air is pulled through the filter.

The maximum acceptable restriction varies form as low as "20" to as high as "30" depending on the engine (check manufacturers recommendations).

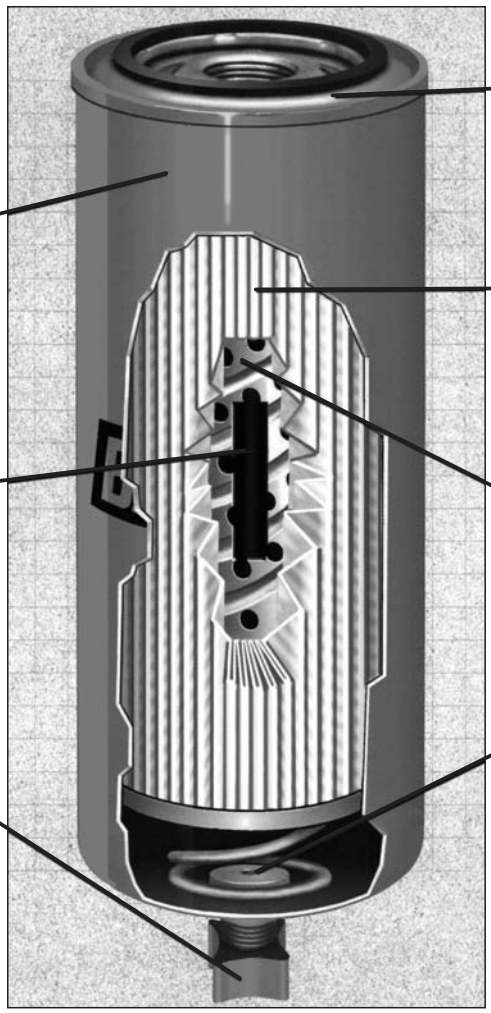
The readings on most restriction gauges ("20" 25 "30" etc.) refer to the increases of water drawn into a tube by increasing the amount of vacuum applied. This equates to the progressively increasing vacuum which occurs as dirt begins to collect in a filter element.

BALDWIN FILTERS®

The Heavy-Duty People

Baldwin Filters' BF1259 exceeds Cummins specifications

New & improved



Heavy-Duty Baseplate is joined to the can with a double-rolled, tuck lock seam to resist leakage due to high pressure.

Heavy-Duty, All-Metal Housing provides unequal burst- and pulse-withstanding strength.

High-Efficiency InterBlend™ Media combines layers of polyester and cellulose to increase containment removal efficiency and containment holding capacity.

Standpipe helps to protect high horsepower engines from hard start problems.

Spiral-Seamed Centertube helps prevent collapse caused by a sudden difference between internal and external pressure.

Easy-Opening Valve has one seal instead of three and requires 88% less torque to open and close.

All-Metal, Self-Venting Drain eliminates the need to separately vent the fuel system prior to draining while adding superior structural and ease of service.

Baldwin 1200 and 1300 Series fuel/water separators are available with or without water sensor ports.

Test results using SAE J1985, SAE J1488 and SAE J905 procedures demonstrate that Baldwin Filters' BF1259 exceeds the OE specifications in efficiency and containment holding capacity. The enhanced performance of our new InterBlend™ media combined with heavy-duty construction make the BF1259 the best choice as the aftermarket replacement for protecting fuel systems in new generation Cummins engines.

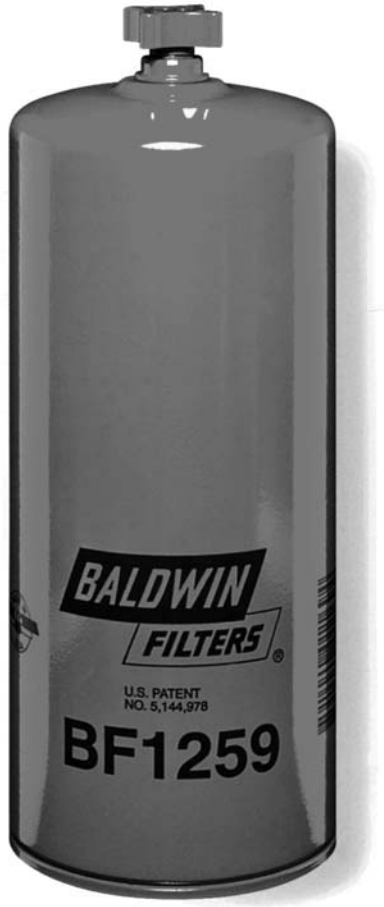
Heavy-Duty Performance BALDWIN FILTERS®

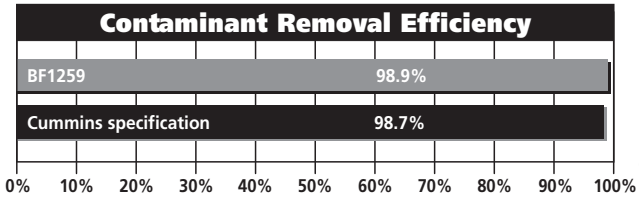
InterBlend™ exceeds OEM specs

Contrary to competitive claims, Baldwin's BF1259 with InterBlend™ media continues to exceed the aftermarket replacement for fuel/water separators on Cummins CELECT™ electronic engines. In recent laboratory tests (see charts below), the BF1259 exceeds OE specifications when testing contaminant removal efficiency, emulsified water removal capability and containment holding capacity.

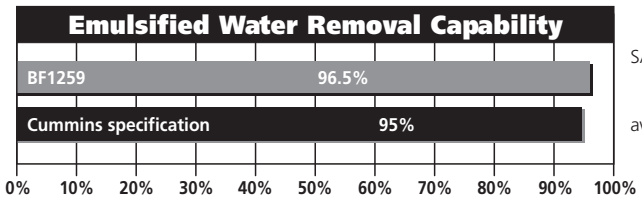
Higher efficiency means less damage-causing contaminants pass through the filter to sensitive fuel injection components, leading to longer and more efficient fuel system life.

The BF1259 with InterBlend media was designed to increase contaminant trapping efficiency, dirt-holding capacity and water-removal efficiency. The final result is a fuel/water separator that meets or exceeds the OEM's filter specifications.

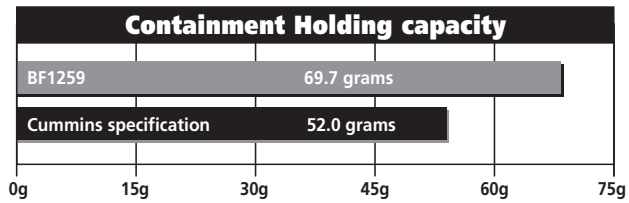




SAE J1985 Test: (Flow Rate 90 gph, PT1 Fine Test Dust, 100F, Termination at 60 minutes). Contaminant removal efficiency at 10 microns.



SAE J1488 Test: (Flow Rate 90 gph, 80F) Bar graph shows average efficiency over the life of the test.



SAE J905 Test: (Flow Rate 90 gph, PT1 Fine Test Dust, 100F, Termination at 4 psid).

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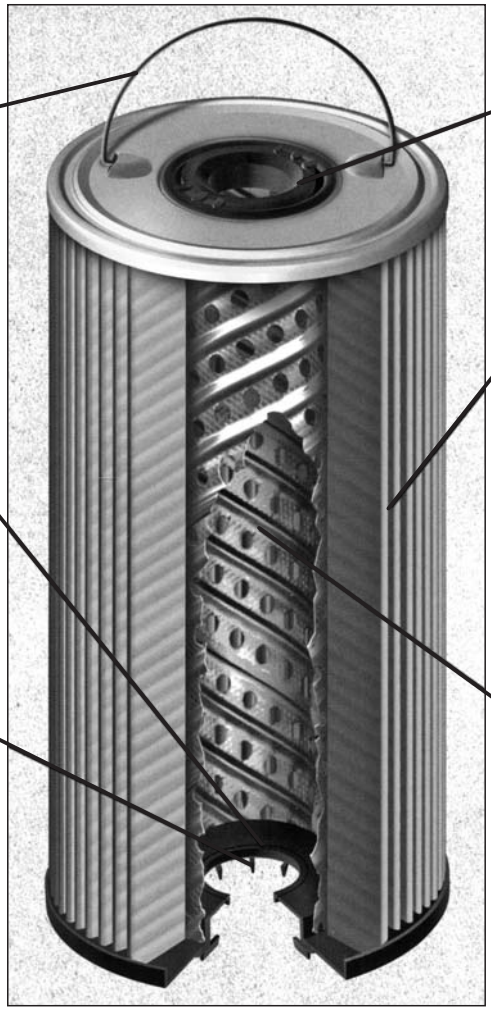
Heavy-Duty Performance BALDWIN FILTERS®

Baldwin Offers Fuel Filter Elements For The Racor® Turbine Filter Housings

Steel Handle swings up for easy removal of element during service.

Integral Post Seal is molded directly into the end cap for ease of service and application reliability.

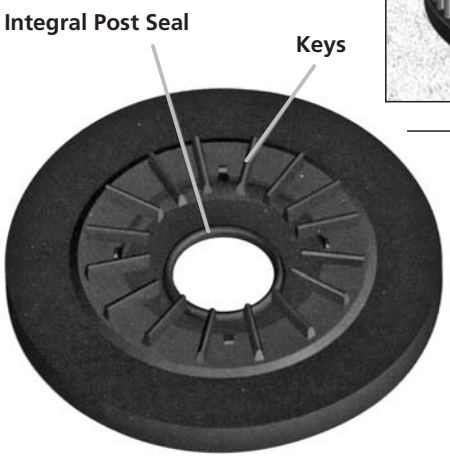
"Keys" open the shut-off valve to allow flow when the element is inserted into the housing.



Emergency By-Pass feature is accessed by simply removing the grommet using the integrally molded handles.

Highly effective HydroShield™ Media repels water and other contaminants, while assisting the turbine housing by removing water from the fuel.

Spiral-Seamed Centertube helps prevent collapse caused by a sudden difference between internal and external pressure.



Baldwin Filters' complete line of fuel filters now includes the new Racor fuel filter element replacements. These filters incorporate an innovative design that will work well with both the old (FG) and the new (FH) OEM style housings. Baldwin fuel filters mean pure performance, system protection and hours of trouble-free fuel system operation.

Heavy-Duty Performance BALDWIN FILTERS®

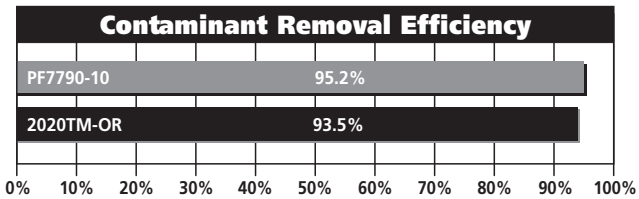
Heavy-Duty Protection for Today's Diesel Fuel Injection Systems

With today's high performance engines, proper fuel filtration is more important than ever. Every day, contaminants, in varying amounts, are introduced into fuel storage systems through mixing, transferring and storing by the consumer, the supplier and their sources.

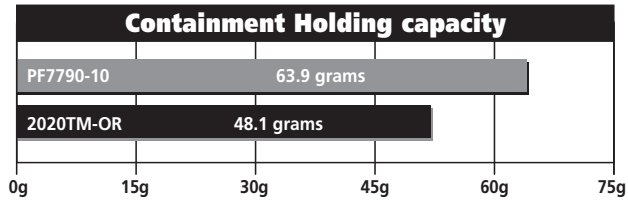
These contaminants can intefere with vital engine components and can affect engine performance.

In industry standard test, Baldwin PF7789 and PF7790 series filters meet, or exceed, the OEM in contaminant removal efficiency, contaminant holding capacity and water removal efficiency.

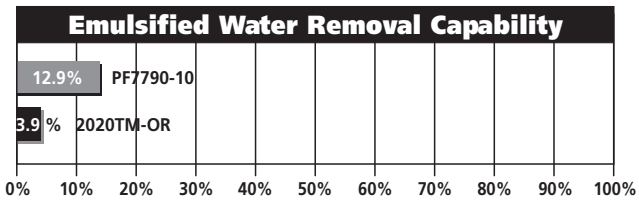
The deterioration of fuel is inevitable, but it doesn't have to stop your engine from running. With Baldwin's PF7789 and PF7790 series filters you can minimise downtime and maximise engine performance.



SAE J905 Test: Flow Rate 180 gph, PT1 Fine Test Dust, Dust Add Rate 12g/6g, Termination 10 psid. Efficiency time weighted average.



SAE J905 Test: Flow Rate 180 gph, PT1 Fine Test Dust, Dust Add Rate 12g/6g. Termination 10 psid.



SAE J1488 Test: Flow Rate 180 gph, Injection Rate 2,500 ppm. Bar graph shows average efficiency over the life of the test.

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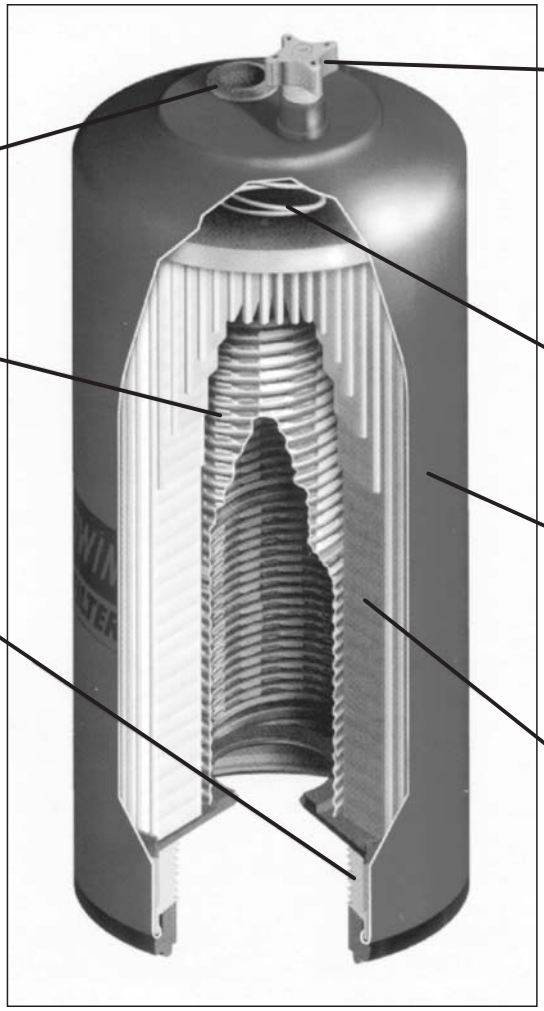
BALDWIN FILTERS®

Heavy-Duty Performance

BF1274-SPS and BF1277-SPS Fuel/Water Separators



Sensor Port Connection accepts the OEM sensor.

Spiral Wound Louvered Centertube adds strength to resist pressure surges and allows the maximum flow of fuel through the centertube.

Heavy-Duty Aluminium Baseplate is joined to the can with a new J-lock seam, reducing the possibility of leakage due to high pressure.

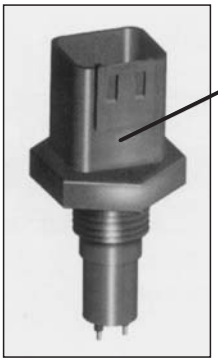
The BF1274-SP and BF1277-SP do not include the reusable water sensor as part of the filter.

Patented All-Metal Self-Venting Drain eliminates the need to separately vent the fuel system prior to draining, while adding superior structural strength and ease of service.

Steel Coil Spring keeps its shape, which maintains a positive load pressure on the adapter seal.

Heavy-Duty, All-Metal Housing provides unequaled burst and pulse-withstanding strength.

High Efficiency HydroShield™ Media was developed to repel water while maximizing strength, effeciency and contaminant capacity.



Reuseable Sensor indicates the presence of water in fuel and is included with the BF1274-SPS and the BF1277-SPS.

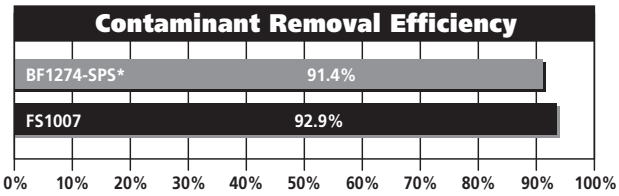
Baldwin -SPS filters have the reusable sensor included with the filter while the -SP versions do not. After the -SPS filter is used once, at the next service interval, reuse the existing water sensor and replace the filter with a -SP version to minimize maintenance cost. This allows Baldwin customers flexibility that no other filter company now offers with these new filters.

BALDWIN FILTERS®

The Heavy-Duty People

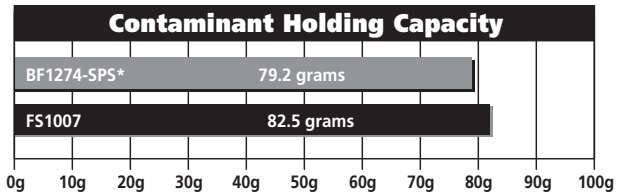
BF1274-SPS and BF1277-SPS Fuel/Water Separators

BF1274-SPS / BF1274-SP



SAE J905/Cummins 14223 Test: (Flow Rate 300 gph, PTI Fine Test Dust, Termination at 5 psi)

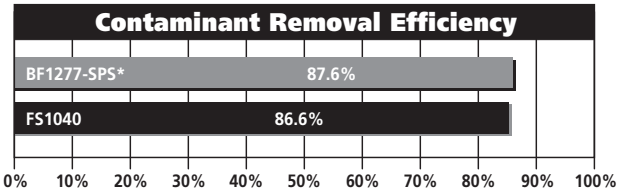
*** BF1274-SP does not include the reusable water sensor as part of the filter**



SAE J905/Cummins 14223 Test: (Flow Rate 300 gph, PTI Fine Test Dust, Termination at 5 psi)

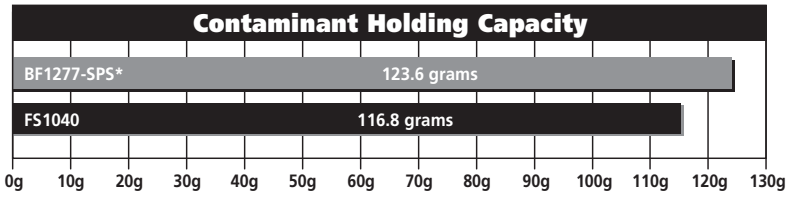
*** BF1274-SP does not include the reusable water sensor as part of the filter**

BF1277-SPS / BF1277-SP



SAE J905/Cummins 14223 Test: (Flow Rate 300 gph, PTI Fine Test Dust, Termination at 5 psi)

*** BF1277-SP does not include the reusable water sensor as part of the filter**



SAE J905/Cummins 14223 Test: (Flow Rate 300 gph, PTI Fine Test Dust, Termination at 5 psi)

*** BF1277-SP does not include the reusable water sensor as part of the filter**

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BALDWIN FILTERS®

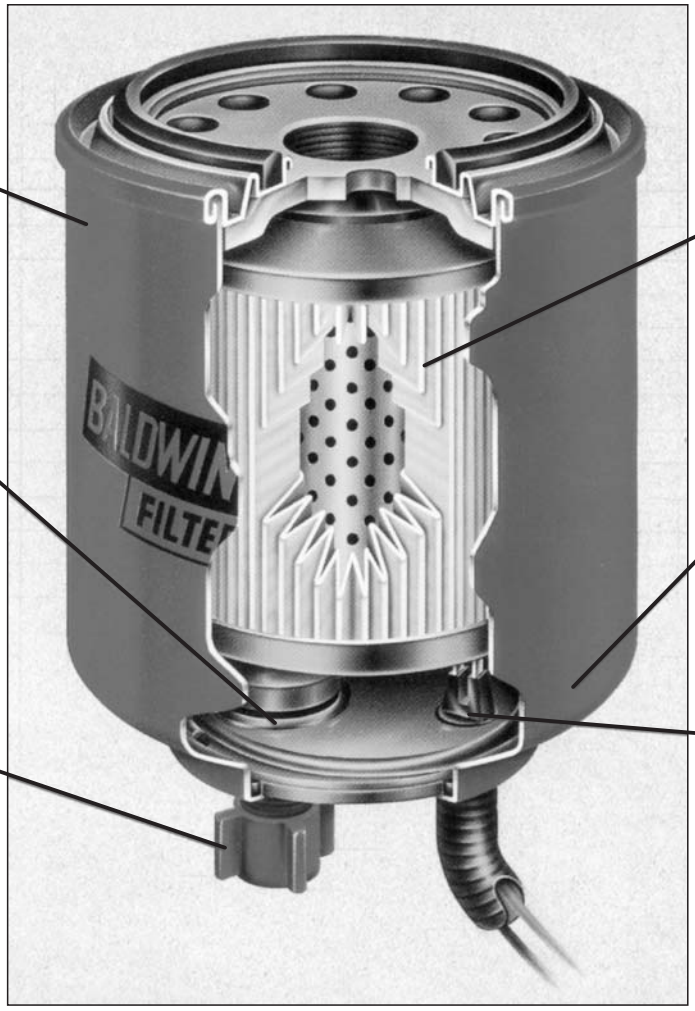
Heavy-Duty Performance

Baldwin Improves On OEM Fuel/Water Separator Design

Heavy-Duty, All-Metal Housing provides unequaled burst and pulse-withstanding strength and eliminates risk of plastic failure.

All-Metal, Self-Venting Drain eliminates the need to separately vent the fuel system prior to draining while adding superior structural strength and ease of service.

Easy-Opening Valve requires 88 percent less torque to open and close.



Highly Effective HydroShield™ Media repels water and other contaminants and provides an average of 37 percent more holding capacity.

Advantage "No-Bowl" Design will not crack or leak like fragile bowl-type models and eliminates the mess and difficulty of changing plastic bowls.

Water Sensor Port accepts OEM sensor for easy visual monitoring.

Baldwin 1200 and 1300 Series fuel/water separators are available with or without water sensor ports.

Get rid of fuel/water separators with fragile plastic bowls which can crack, leak and be difficult to replace. Baldwin's new 1200 and 1300 Series of fuel/water separators deliver superior protection, added efficiency, plus problem-free durability. For details, see your Baldwin distributor today.

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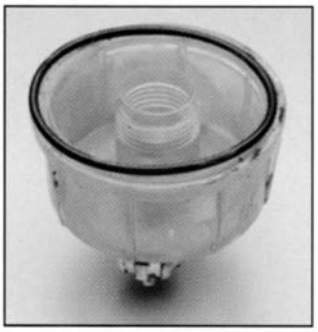
Fuel/Water Separator Comparison

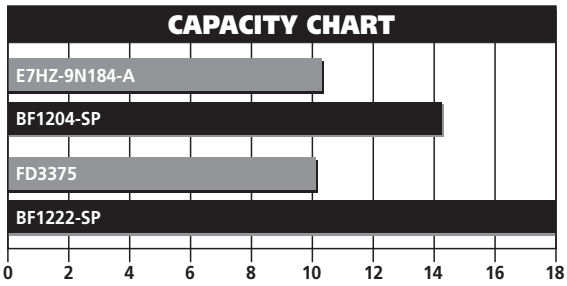
OEM Fuel/Water Separator



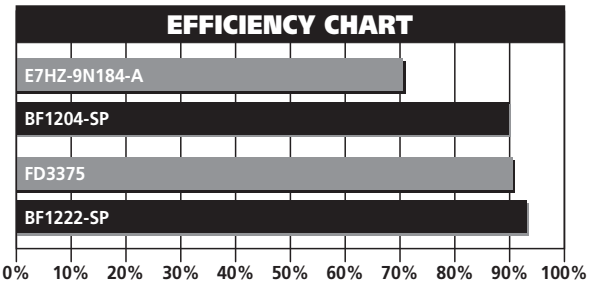
Inside view of plastic bowl

1. See-through plastic bowls are subject to chemical attack and road hazards causing cracking, clouding and crazing. Baldwin's all-metal construction is impervious to chemical attack and is less susceptible to damage from road hazards.
2. Replacing bowls that leak fuel or are damaged is difficult and results in increased cost and downtime.
3. Baldwin's all-metal design is stronger and has increased burst strength by 44% and dynamic pulse strength from an average of 4,500 cycles at 0-75 PSI to 50,000 cycles.

Baldwin 1204-SP Fuel/Water Separator



Averages a 20% increase in capacity. SAE J905 Test Procedure.



Averages a 7.4% increase in efficiency. SAE J905 Test Procedure.

Baldwin's 1200 and 1300 Series fuel/water separators remove 98% of free water and 93% of emulsified water. SAE Procedure J1488.

Baldwin Replacements

NEW BALDWIN #	REPLACES OEM #	RACOR #	OLD BALDWIN #	APPLICATIONS
BF1204 BF1204-SP	Ford E7HZ-9N184A Motorcraft FD3370	R26, R26P 225 Series	BF1234	Fits 1985-90 Ford 6.6L and 7.8L Diesel Engines
BF1205 BF1205-SP	Ford E8HT-9J288-AA			Fits 1991-On Ford 6.6L and 7.8L Diesel Engines
BF1222 BF1222-SP	Ford F2TZ-9N184-A Motorcraft FD829 Motorcraft FD3375	R42	BF1230	Fits 1988-95 Ford 7.3L Diesel Engines
BF1223 BF1223-SP	Ford F1HZ-9365-A Carrier 30-01079-00 Motorcraft FD3368	R44		Fits 1991-92 Ford 7.8L Diesel Engines, Fits Carrier Reefer Units
BF1345 BF1345-SP	IHC 1677004-C91, 1618385-C91	R43		Fits 1994-On IHC DT360, DT466 Diesel Engines
BF1346	IHC 1685159-C91			Fits IHC Trucks with Cat or Cummins Engines

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Heavy-Duty Performance BALDWIN FILTERS®

BALDWIN FILTERS®

The Heavy-Duty People

Protect Your Engine's Future

DAHL DIESEL FUEL FILTER/WATER SEPARATOR REMOVES DIESEL FUEL SYSTEM PROBLEMS ALONG WITH WATER

Water and solid contaminants displace the diesel fuel's lubricative coating on the high precision injection components. The loss of this protection results in wear, erosion, surface pitting and eventual pressure loss.

Many existing fuel filters aren't designed to remove significant amounts of water. They are designed to do their job in a single step. This means they must be porous enough to allow sufficient flow volume which, in turn, limits filtering ability to between 10 and 30 microns. Any tighter media would plug too quickly and result in frequent element changes.

The DAHL system, with its 2 micron filter, takes care of those short-comings. DAHL's functional dual chamber 3-stage diesel fuel filter/water separators provide efficient suction side water separation and contaminant filteration. The key is the unique DAHL patented depressurizer cone which spreads the flow of the fuel. With more area to flow over, greater separation of water and dirt from the fuel is achieved.

DAHL diesel fuel filter/water separators have less mechanical flow resistance than other separators, because the fuel changes direction only twice. The DAHL unit removes virtually 100% of the water and contaminants.

Storage Tank Filter

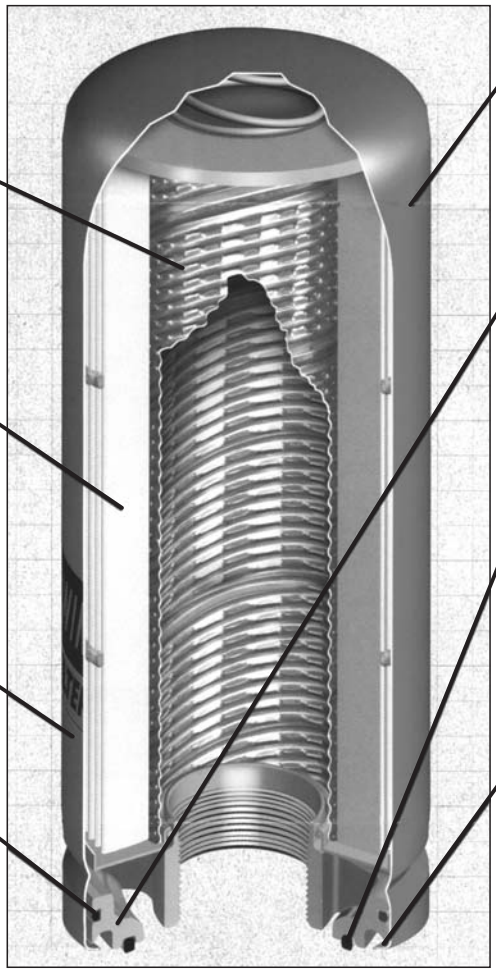
Baldwin Medium Pressure Hydraulic Filters With L-Lock™ Design

Spiral Seamed Centertube helps prevent collapse by a sudden difference between internal and external pressure.

High Efficiency Media, either synthetic or cellulose, is designed to meet or exceed the requirements of each particular system.

Seamless Canister Design eliminates possible leak path.

Integral Housing Seal prevents leakage and absorbs shock loads on the canister.



Heavy-Duty, All-Metal Housing is built to handle the stress and punishment of sophisticated, modern hydraulic systems.

Heavy-duty Baseplate is constructed of aluminium, offering the strength and durability necessary for 500+ psi hydraulic systems.

Heavy-duty O-Ring Gasket requires only 1/2 turn after gasket contact, for easier installation.

L-Lock Hem joins the canister and baseplate to protect against high-pressure surges and vibration.

Introducing Baldwin High Strength Hydraulic Spin-On Filters

Baldwin Filters offers a complete line of hydraulic filtration products.

Baldwin Filters' broad, heavy-duty coverage includes high strength hydraulic spin-on filters with an innovative design built to handle the pressure from today's heavy-duty hydraulic applications. Baldwin hydraulic filters mean pure performance, system protection and hours of trouble-free hydraulic system operation.

BALDWIN FILTERS®

The Heavy-Duty People

Hydraulic Filters Designed to Meet or Exceed Today's Equipment Requirements for High Performance

As the sophistication of hydraulic systems and components has increased, so has the importance of system maintenance. The easiest and most cost effective way to lower maintenance expense and help insure trouble-free system operation is through proper filtration.

The hydraulic filter, which was once nonexistent in hydraulic systems, has now become a critical component. In fact, few other areas of filtration have changed as rapidly as hydraulics.

The reason for such rapid change is that hydraulic systems are replacing other types of power transmissions. To improve safety and efficiency, equipment designers are using hydraulics to replace belts, chains, cables and other methods of transferring power.

Hydraulic systems are also becoming more demanding. Most new hydraulic equipment is designed to be easier to operate and maintain. This often requires closer tolerances, faster cycle times, higher pressures, extended service intervals and more complex systems - all placing more demands on the filter.

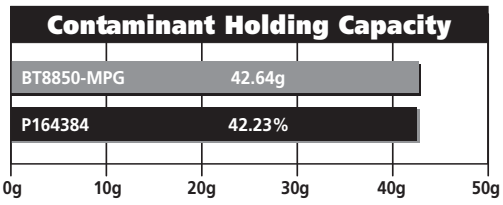
With these demands on today's hydraulic systems, maintaining system cleanliness through proper filtration is essential to insure maximum efficiency and reliability.

To improve system cleanliness, Baldwin Filters utilises two types of filtration media. Cellulose media, made up of natural fibres, has high structural strength, with rough, irregularly shaped fibres for good particle retention.

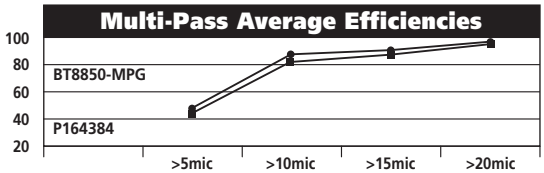
Synthetic media is the choice for higher pressure, hydraulic and transmission applications. The man-made glass fibres have characteristics that present the least possible resistance to flow, while removing contaminants from fluid.

The hydraulic filter has become a critical system component and Baldwin is committed to providing quality filters to protect your equipment.

Baldwin vs. Leading Competitor



ISO 16889 Test: Flow Rate 24 gpm, Termination 25 psid.



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BALDWIN FILTERS®

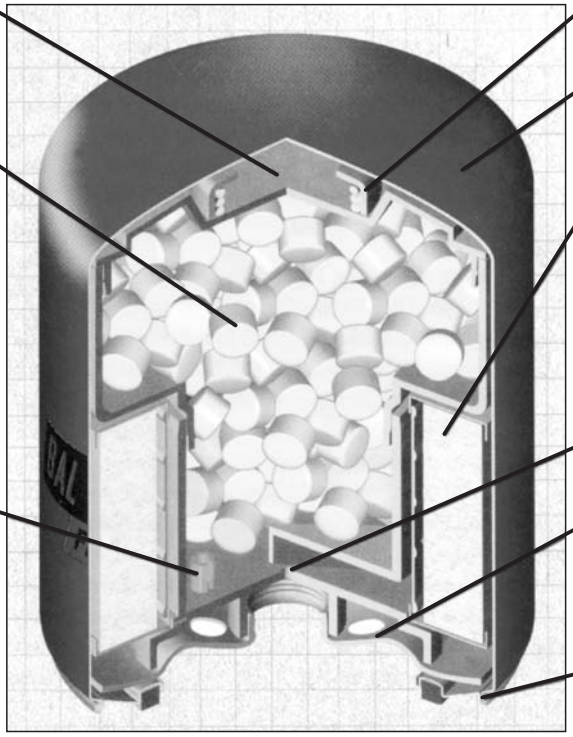
Heavy-Duty Performance

Baldwin Pioneers A New Approach In Long Life Coolant Filtration

Injection Molded Plastic Chamber contains Controlled Release Coolant Pellets, which are located upstream of the filter media.

Controlled Release Coated Pellets diffuse SCAs into the system (when exposed to heat and coolant flow), which are then filtered, prior to entering the engine. BTE Supplemental Coolant Additives provide the best protection from cavitation, scale, rust and other forms of corrosion. Reduces the potential for water pump seal leaks.

SCA Diffusion Control Orifice meters diffusion of SCA chemical into coolant flow (to allow SCAs to be released in the amount required to maintain proper system balance), for up to 150,000 miles of service.



Spring Protector isolates dissimilar metals to prevent corrosion.

Epoxy Coated Can reduces the possibilty of corrosion during extended service intervals.

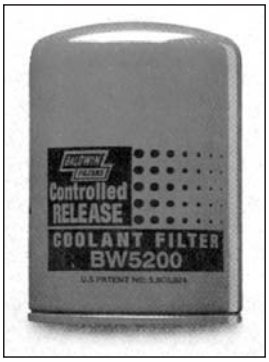
Synthetic Media designed to withstand heat and degredation from long-term exposure to coolant flow. High capacity and efficiency allows media to trap contaminants that could reduce system efficiency.

Flow Control Orifice meters flow of coolant through filter.

Heavy-Duty Baseplate made from stamped steel, designed to withstand extended service intervals.

Double-Rolled Tuck Lock Seam prevents coolant leaks.

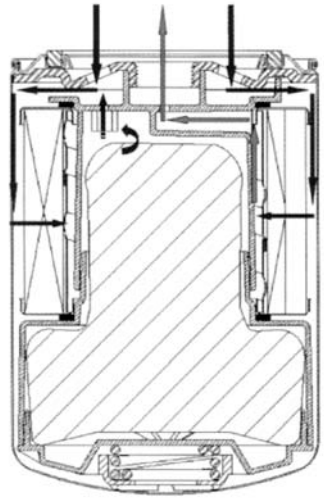
BALDWIN FILTERS Controlled RELEASE COOLANT FILTER



Baldwin Filters introduces the latest technology in coolant system care. The patented BW5200 Coolant Filter contains "Controlled Release" Supplemental Coolant Additives to protect diesel engine coolant systems for one year or 150,000 miles. Contact your Baldwin Filters Distributor today, and gain "control" of your Coolant System.

BALDWIN FILTERS®
Heavy-Duty Performance

It took Baldwin Filters' ingenuity to finally "Get it Right!"



■ Inlet Flow ■ Outlet Flow ■ Diffusing Chemical

Flow Schematic
Baldwin BW5200 Controlled Release Coolant Filter

Extensive Field Testing

After 5-years in development, and over 3-million miles of field testing, Baldwin Filters is offering a "Controlled Release" Coolant Filter that transcends the offerings of our competitors. The Baldwin Filters "Controlled Release" Filter utilizes a patented process that allows Supplemental Coolant Additives to be released into your coolant system only when heat and coolant flow are present. Our field tests show that the supplemental additives are released at an even rate. This is important because competitors' filters can "dump" all the additives at once, potentially over-charging the system, leading to additive drop out. The other extreme is not releasing enough additives, towards the end of a maintenance period and leaving the system vunerable to cavitation erosion and corrosion.

Better By Design

With the BW5200 all coolant is conditioned with coolant additives prior to being filtered. This ensures that no undissolved particles from the chemical mass can enter the system. It also ensures that the flow control orifice cannot be plugged. The competitive products have a flow pattern that routes the coolant through the filter elements first, leaving the possibility that solids could plug the flow control orifice. This would disable the filter, stopping the SCAs from entering the system and leaving engine components unprotected.

High Capacity, High Strength Media

The BW5200 media is a high-capacity synthetic media designed to trap contaminants and maintain its structure through a long service interval. The high efficiency synthetic media used in some competitive products has very low capacity to hold contaminants before plugging leaving the system vulnerable. Once the filter plugs, the flow stops and no SCAs are released to protect the system. The media used in other primary competitor products is cellulose. On our simulated service laboratory test stand, the media in the filter became soft and restrictive, significantly reducing the flow through the filter. Without flow, the SCAs contained within the filter cannot be released.

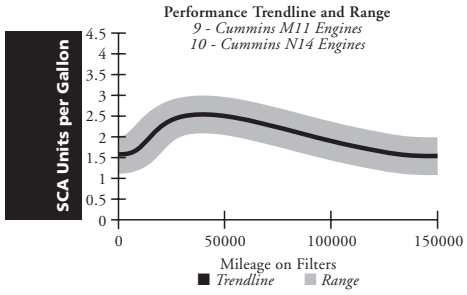
Competitive Product Can Leave You Exposed

One competitive long life design relies on corrosive coolant to begin the process that releases the SCAs into the coolant system. In this process, a magnesium plate is in contact with a copper center-tube that holds the SCA. When the coolant becomes corrosive enough, a reaction between the magnesium plate and the copper centertube occurs. As the magnesium corrodes, the SCAs are exposed to coolant and begin to dissolve into the system. It takes considerable time before the magnesium plate corrodes enough to allow the SCAs to enter the system. The coolant system is left corrosive and unconditioned for this long time interval.

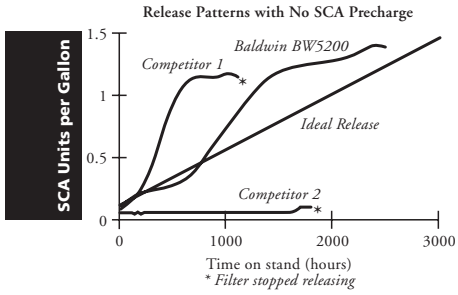
There is no correlation between the corrosion of the magnesium plate and cavitation corrosion of wet sleeve liners. A system can have low enough SCA levels to promote cavitation corrosion in wet liners, and still not be corrosive enough to release the SCA chemical in the filter. This is why the competitor insists that you test your coolant additive level at every oil change interval and add liquid SCAs to the system.

Tests Prove Performance Superiority

BW5200 FIELD TESTING



SIMULATED SERVICE TEST



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Heavy-Duty Performance BALDWIN FILTERS®

Baldwin Filters' FleetStrip™ Kit Makes Coolant Testing More Efficient

Economical System provides 50 tests per kit and costs less than multi-strip or titration methods.

Colour-Coded Chart instantly tells you the condition of your supplemental coolant additives and what you should do next.

Universal Test Kit will test all types of SCAs.

Simple To Use - absolutely no mixing or measuring of coolant is needed.

One-Step Testing saves time by measuring freeze point, nitrate and molybdate levels on a single strip.

Accurate, Easy-To-Read Results are assured by the latest in diagnostic medical strip technology.

Baldwin Filters' coolant filtration line includes high quality additives such as BTE, coolant system cleaners and heavy-duty filters.

Baldwin Filters' FleetStrip™ kit is a one-step way to test your coolant system. Equally important, it's universal - making it easy to monitor any type of conventional coolant formulation. Find out how FleetStrip can aid your maintenance program with coolant testing that's fast, precise and affordable. See your Baldwin Filters distributor today for details about FleetStrip and Baldwin Filters' complete line of coolant filtration products.

BALDWIN FILTERS®

The Heavy-Duty People

One Step To Improved Coolant Maintenance

Why Frequent Testing Is Important

A heavy-duty diesel engine may run more hours in a year than a car engine will in its lifetime. This higher workload can cause additives in most commercial antifreezes to deplete at a much faster rate than they would in automotive use. This makes a periodic check of depletion rate and addition of supplemental additives vital to long engine life.

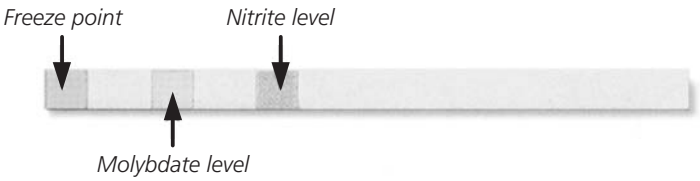
Why Baldwin's FleetStrip Makes Testing Easier

1. It can be used to test both ethylene and propylene glycol antifreezes.
2. It allows quick, accurate testing without having to know what base additives (borate-nitrite or molybdate, nitrite-phosphate) are in the coolant.
3. It eliminates inaccurate readings caused by using a hydrometer to test propylene glycol antifreeze.

Here's How It Works

Test Strip

Three test pads provide one-step readings.

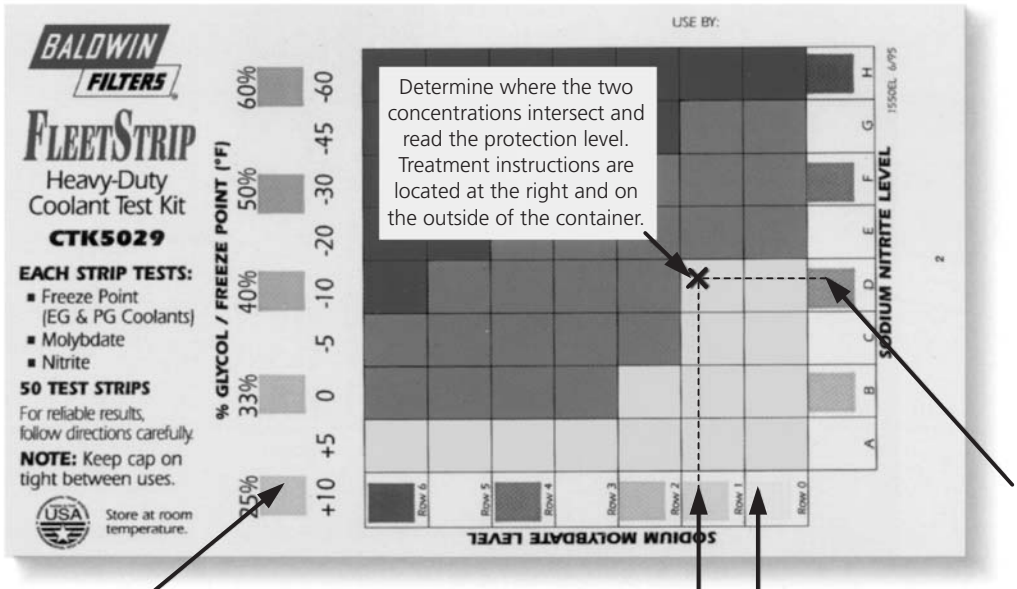


Treatment Instructions

(Yellow) - Replace service filter and add 1 pint of SCA liquid per 4 gallons of coolant.

(Green) - Continue to replace service coolant filter at each drain interval. (1 pt liquid / 16 gallons)

(Red) - Do not replace service filter. Use filter without chemical until SCA level falls into green area of chart. Test at every oil change interval.



Determine where the two concentrations intersect and read the protection level. Treatment instructions are located at the right and on the outside of the container.

Match the Nitrite colour change to this section

Note: Use row 'O' to match Nitrite-Borate formulas.

Match the Freeze Point colour change to this chart area for easy verification of protection level.

Match the Molybdate colour change to this section

QS 9000 ISO 9001 QUALITY SYSTEM CERTIFIED

BALDWIN FILTERS® *The Heavy-Duty People*

CSC Cooling System Cleaner

WHAT CSC WILL DO FOR YOUR COOLING SYSTEM

CSC will remove these contaminants from your cooling system:

- **Corrosion Products** are insoluble deposits of iron, aluminium, copper and lead formed as the result of corrosion.
- **Hard Water Scale** is insoluble deposits of calcium and magnesium resulting from hard water, temperature and reactions with antifreeze and inhibitors.
- **Oil Contamination** has always been a problem within the heavy-duty diesel engine. Some ways oil can find its way into the cooling system are from internal leaks, repairs to the system, and use of additives containing soluble oil.
- **Silica Gelatin** has only recently been recognized as a common formulate within cooling systems. Silica gelatin is the result of inhibitor over-concentration with antifreeze and/or supplemental inhibitors or use of a high silicate antifreeze.

COOLING SYSTEM DEPOSITS AND FOULING

• Impede Heat Transfer • Restrict Coolant Flow • Increase Operating Temperatures

• Reduce Efficiency • Increase Down Time and Maintenance Cost

BALDWIN FILTERS®
The Heavy-Duty People