



DS Fireplace Insert
High Efficiency Hopper Fed Coal Insert

Model FP16

OWNER'S MANUAL



This insert meets
Test Standards:
UL 1482 - ETLM 78-1
ULC S628



MADE IN USA
By
D.S. MACHINE SHOP

**Before you install or operate a DS
Fireplace Insert, you must:**

- Read all instructions carefully
- Install smoke and carbon monoxide detectors.

All D.S. Fireplaces must be installed by a NFI Certified Technician

Safety Instructions

1. Read all instructions carefully before installing or operating any D.S. insert
2. **You must install smoke and carbon monoxide detectors before you install or operate any insert. Check your local codes, this installation must comply with their rulings.**
3. Do not open bottom door to increase draft. It is designed only to empty ashes.
4. Never leave insert doors open when unattended
5. Do not hook up a coal insert to an aluminum type B gas vent. Use a code approved Class A chimney liner with a 6" diameter that is 20' high, minimum.
6. On all new installs connecting to an existing chimney liner, a level 2 chimney inspection must be done by a Certified Chimney Sweep.
7. Clean chimney before installing insert. If there is creosote attached to the liner you could create a serious chimney fire.
8. Never leave children unsupervised when they are in same room as insert. Provide a sturdy barrier to keep children and pets a safe distance from the insert, or they could get severely burned.
9. Keep insert area clear from all combustible materials, gasoline, and other flammable vapors and liquids.
10. Do not operate insert with fuel load door or ash removal door open.
11. Check the clearance to combustible walls and floors as shown on the UL Listing plate.
12. Do not allow anyone who is unfamiliar with the insert to operate it.
13. Spend some time with your insert to become well acquainted with the different settings and how each will affect its burning patterns. It is impossible to state just how each setting will affect your insert because of variations in each installation, and chimney drafts.
14. Be extremely careful when removing the ash pan. It can get very hot!
15. Do not install this insert in a mobile home or trailer.
16. Fasten chimney liner adapter to insert with at least 3 screws.
17. If this insert is installed in a factory built fireplace then fireplace must be listed per UL 127 or ULC S610.

Operation Instructions

Starting a Fire

1. When starting a fire, set hot air regulator and air wash to medium. Located at right side of Insert.
2. Open fire door and place wads of crushed paper in the firebox. Turn on blower, setting should be on high. **NOTE: Never turn blower off while insert is in operation.**
3. Put kindling on top of paper. NOTE: You can also buy Fire Starter Gel or Bricks made by Rutland Products. www.rutlandproduct.com Or use charcoal briquettes.
4. Ignite paper or fire starter product.
5. Leave fire door open slightly until the smoke clears out. **DO NOT** leave insert unattended with the fire door open!
6. Once kindling is ignited add larger pieces of wood. After wood fire is well established add a 2" layer of coal.
7. Once first layer of coal is glowing red add another 2" layer of coal. Repeat this until you have about a 6" layer of glowing red coals. Don't add too much coal at a time or you could smolder the fire. You do not have an established fire until you have 6 inches of red coals on top of the grates.
8. If you have a coal hopper, you can now fill your hopper. The coal hopper holds approximately 20 lbs. of coal, and has a burn time of 12-24 hours.
9. Once you have an established fire set your regulator, blower, and air wash to meet your needs, and reload coal as needed. You can add 30 lbs. or more coal per feeding. Adjust hot air regulator and air wash together. When one is on low they should both be on low. When one is on high they should both be on high. If you experience coal gas explosions turn air wash to high.

10. The insert is designed to burn coal at a predetermined firing rate. Over firing occurs when the ash door is left open during operation or a highly volatile fuel, i.e. large amounts of small kindling is used.
11. Do not exceed 600° degrees on top of insert.
12. NOTE: Shake ashes every 12 hours if possible. You must keep your ashes cleaned out from under the grates. This may require emptying your ash pit daily. If there is no air space under the grates, the grates will warp and become inoperable.
13. Regularly check the fit on the load, hopper and ash doors. They must fit tightly. If it does not, check for deterioration or wear of the ceramic rope seal. Replace defective seals.
14. Inspect and clean your chimney liner regularly.
15. In the event of a chimney fire, shut all draft controls off and call your fire department immediately. Alert everyone in the house. If flue is still burning vigorously, throw baking soda into firebox or discharge a fire extinguisher into fire box. After the chimney fire is over, have a certified chimney sweep complete a level 2 chimney inspection before farther use of your chimney.
16. With new steel there is a small amount of oil or dirt on the metal. You may smell an odor. This is normal during the first operation. You may want to assemble the insert out of doors and build a small fire in it to "BURN OFF" this dirt and oil before installing unit.
17. Equip your home with fire extinguishers, carbon monoxide and smoke detectors.
18. Do not burn garbage, gasoline or any other flammable liquids in this insert.
19. Do not burn insert over 600°F or warranty will be void!

Fireplace Insert Annual Maintenance - After every burn season

1. Clean out firebox and ash pan area after each heating season.
2. Replace any cracked or broken firebrick! (very important) If this is not followed your insert is at risk for warping and may void your warranty.
3. Take out coal hopper, remove baffle insulation and reburn baffles. Clean them with vacuum cleaner or blow gun. Once cleaned everything can be reinstalled back into insert.
4. Check grates and shaker handle for wear or warping and replace if necessary. Check for any loose hardware on doors, door latches and shaker handle, tighten or replace as needed. Check all gaskets on window glass, hopper, fire and ash doors for deterioration or tears, replace where necessary. Also check seal of doors by closing doors on a piece of paper. If you can move the piece of paper between door frame and gasket, replace door gasket.
5. Clean inside of chimney liner at least once annually (in Spring). For longer life oil inside of liner with vegetable oil.

Fireplace Insert Specifications - FP16

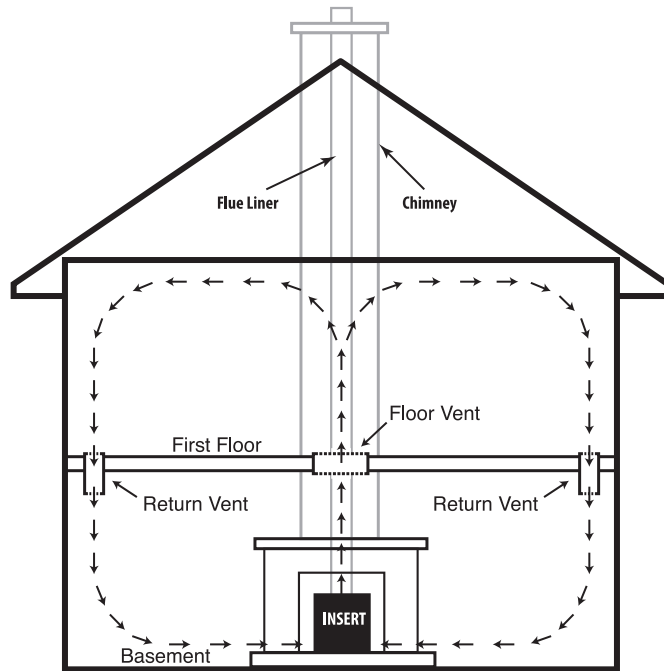
• Approx. BTU	105,000
• Heating Capacity (sq ft)	2000
• Fire Box Size (wxdxh)	16 x 18 x 11
• Fire Box Capacity	60 #
• Coal Hopper Capacity	20 #
• Approx. Coal Capacity w/Hopper	80 #
• Flue Size	6"
• Fire Door Gasket	62" of 3/4" Rope Gasket
• Ash Door Gasket	50" of 3/4" Rope Gasket
• Window Gasket	52" of 7/8" Window Gasket
• Fireplace Insert Weight	480 lbs

Locating Insert

Liner Hookup To Insert

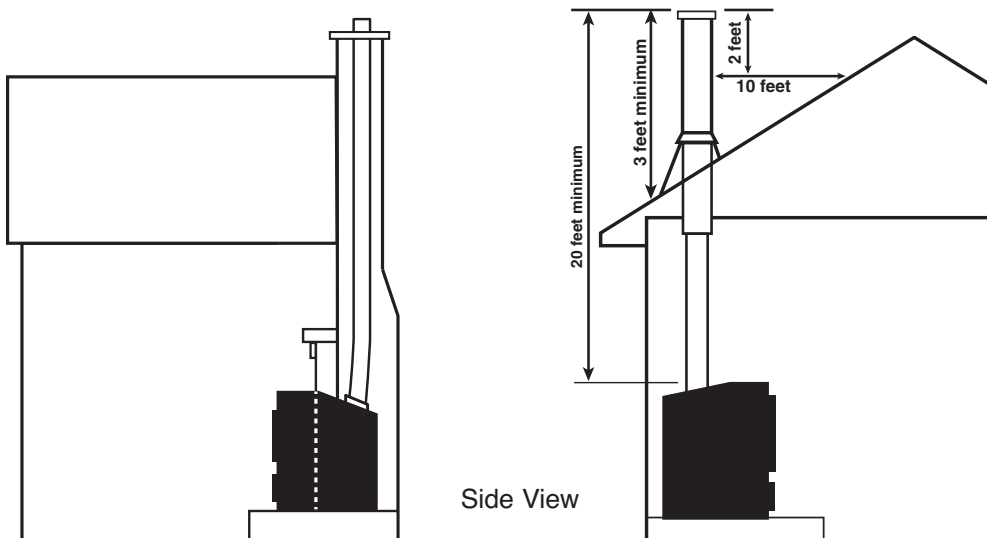
You will need to attach an appliance adapter on the bottom end of your liner. Then you can either put 3 screws in the exhaust collar of the insert from the outside top of the insert or from the inside of the firebox. To access the exhaust collar from the inside of the insert you will need to remove the coal hopper and baffle.

CAUTION:
Keep furnishings and other combustibles away from the insert.



Chimney Requirements

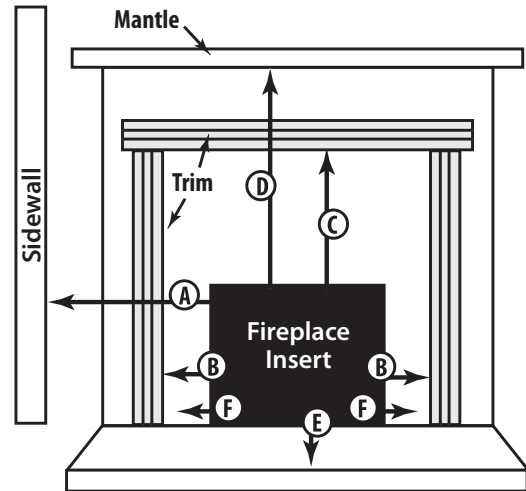
Use a Class A stainless steel 6" diameter chimney liner that reaches to the top of your chimney. The minimum height of a chimney system for the D.S. Fireplace Insert is 20 feet. The chimney must exceed the roof of a house at a minimum of 3 feet at any point of exit. In a pitched roof installation the chimney must be 2 feet higher than anything within a 10 foot radius of the chimney. It is important to have a chimney draft of 0.06 water column. It is required to abide by the manufacturer's instructions on Class A chimneys as well as local building codes. It is not recommended to build a chimney on an addition that is lower than the main part of your house. Never connect this unit to a chimney serving another appliance. Should you have a problem with inadequate draft you should see page 11.



Clearance Requirements

Fireplace Insert Chimney, Clearance Requirements and Specifications

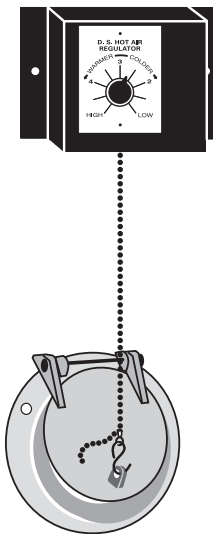
1. Insert must be installed in an existing masonry or factory built fireplace. Maintaining all clearance to combustibles.
2. Insert must be installed on a noncombustible surface.
3. Locate and read clearance to combustibles in manual before installing unit. The most important consideration in installing your insert is adequate clearance between the insert and any combustible surface. An Insert that is located too close to a mantel, trim, furniture or any combustible materials may cause a fire.
4. A noncombustible base must extend at least 16" beyond front of insert and 8" beyond each side of load and ash doors.
5. Do not connect this unit to a chimney flue servicing other appliances. A "6" Class A" chimney liner must extend from insert to top of chimney. It is recommended to wrap liner with foil faced insulation to enhance performance of chimney.



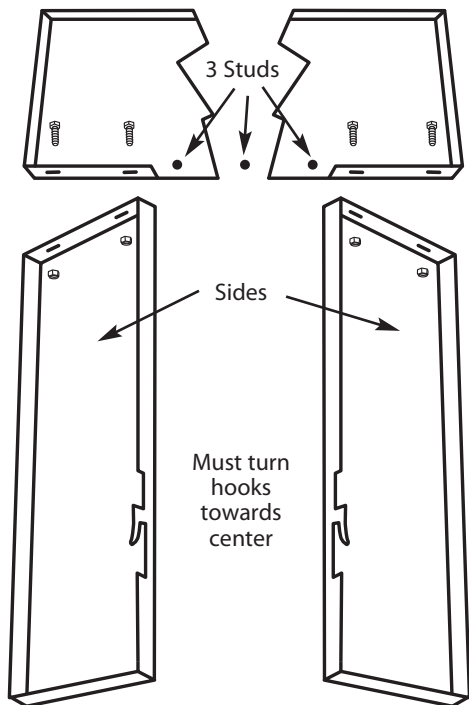
Minimum Clearances to Combustible Materials

Unit to Sidewall	A - 10"
Unit to Right Side Facing	B - 9"
Unit to Left Side Facing	B - 9"
Unit to Top Facing	C - 25"
Unit to Mantle	D - 30"
Floor Protection in Front of Door	E - 16"
Floor Protection each Side of Door	F - 8"

Hot Air Regulator with Draft Intake Chain Adjustment

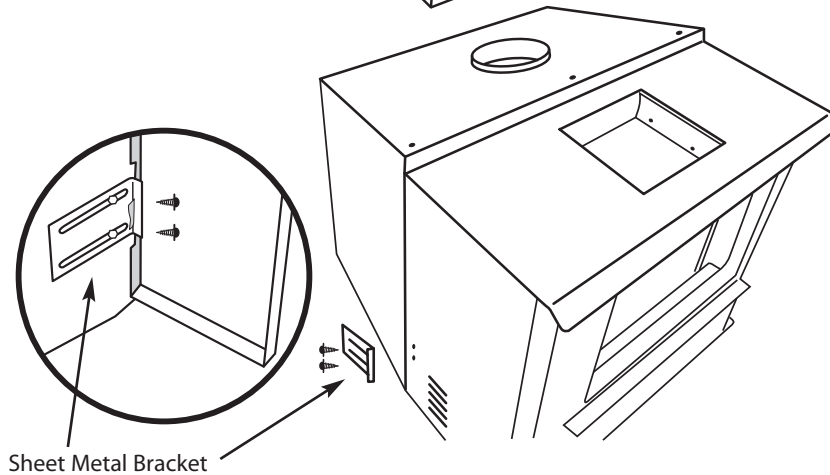
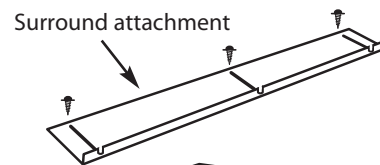
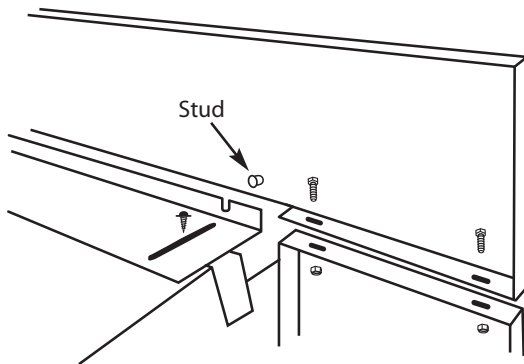


Assembly Diagram



Surround Instructions

1. Bolt surround top to sides using 4 - $1/4 \times 1/2$ bolts and 4 - $1/4$ nuts. Make sure the hooks are turned towards center.
2. Fasten sheet metal brackets to right and left side of fireplace insert using 4 - #14 x $3/4$ screws. (do not tighten)
3. Fasten surround attachment to top of insert (do not tighten) using 3 - #14 x $3/4$ screws.
4. Attach surround to insert.
5. Determine the depth of your fireplace, and where you want your insert placed. You have a 2" adjustment, see page 10. Set surround accordingly and tighten all screws. You may want to consider putting card board or carpet on your hearth so you can slide insert back into place with out scratching hearth surface. Once fireplace is in position remove card board or carpet.



Assembly Diagram

Blower Instructions

On the front lower right corner you will find a speed controller. This is where you can turn blower off and on or choose the speed of your blower. **NOTE: Never turn blower off while insert is in operation.**

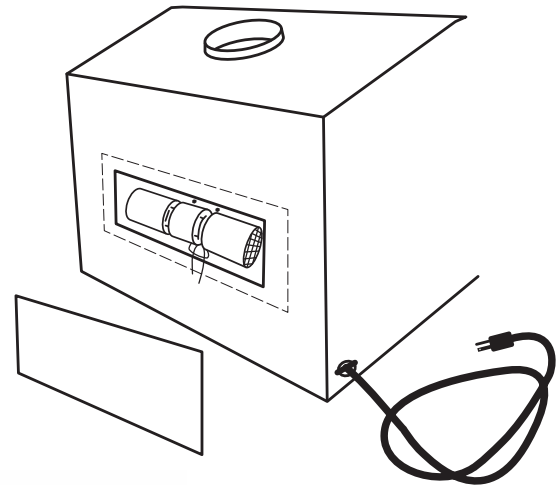
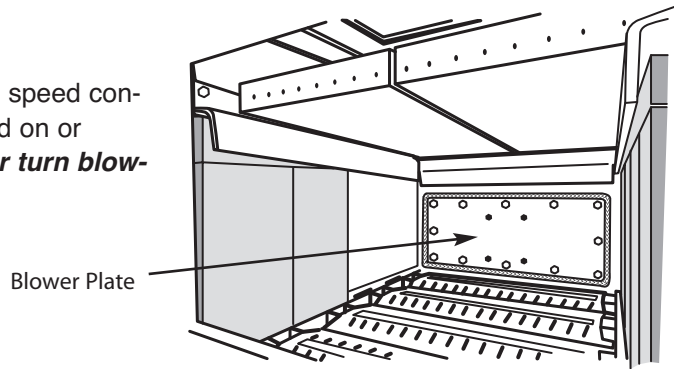
If your blower needs serviced or replaced there are two ways of accomplishing this.

Access through firebox.

- Clean out firebox.
- Remove two back brick on left side of firebox. Remove back row of firebrick, 11 gauge SS heat shield and the blanket insulation.
- Take the 12 bolts out of blower cover plate located at the back of firebox. Pull blower right into the firebox. Disconnect wiring and remove blower from insert.

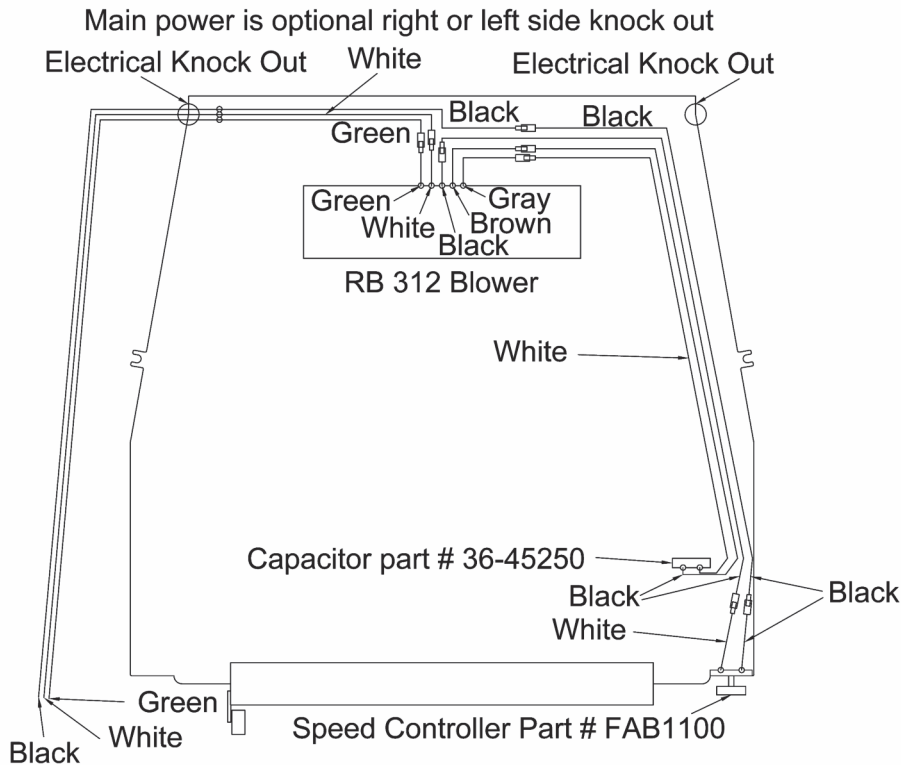
Access from back of unit

- Remove blower access panel from back of unit.
- Remove 4 bolts that hold blower in place.
- Pull blower straight out the back of unit. Disconnect wiring and remove blower from insert.



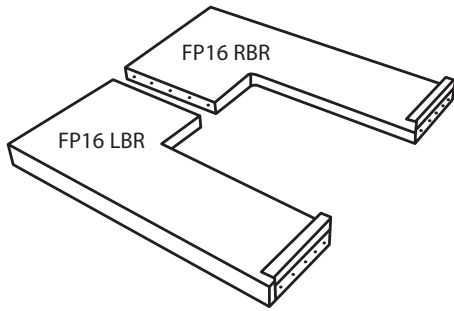
Power cord can be left or right side of insert.

FP16-Wiring Diagram

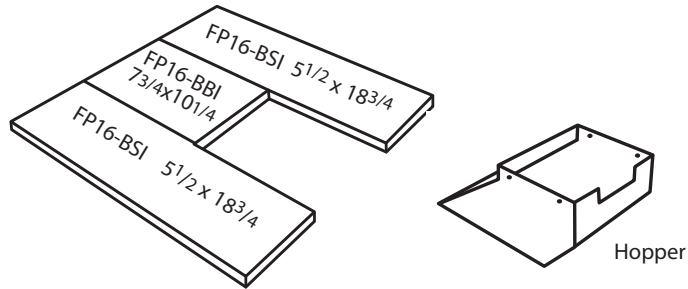


Assembly Diagram

Coal Hopper Standard Baffle



Coal Hopper Standard Baffle Insulation
FP16-BSI / FP16BBI



Front Loading Baffle Option

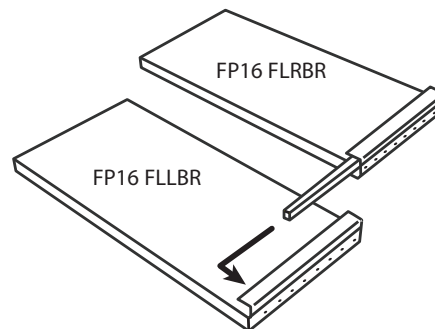
We have a front loading baffle as an option that can be purchased separately.

1. You will need to remove hopper, baffle insulation and baffles that were shipped with insert to install front loading baffle.
2. To install front loading baffle you will want to stack your three pieces of insulation on the right side baffle piece that has the square stock welded to it. Insulation belongs on top. Slide the right side baffle with the insulation up and into the right side of insert.
3. Now take left side baffle piece and slide it up in beside right side baffle sliding your top return bend over the square stock welded to the right side baffle. This will interlock your right and left baffle pieces.
4. Do not push baffle the whole way to the back of insert yet.
5. Now slide your insulation across the top from right to left. You should have

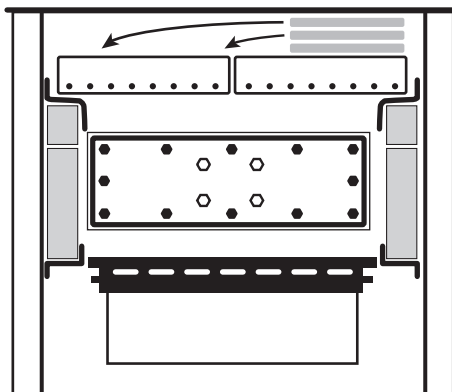
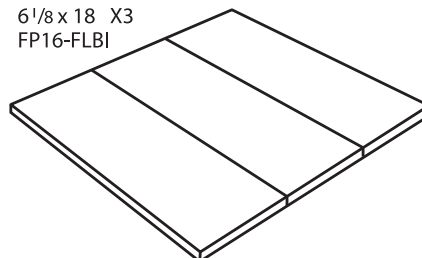
three pieces of insulation beside each other covering the top of the baffle. Slide the top side of insulation under return bend of baffle.

6. Push baffle back into position. Make sure holes on bottom back corners of baffle connect to square tubing at back corners of firebox, this is very important for the function of your baffle.

Coal Hopper Front Loading Baffle



Coal Hopper Front Loading Baffle Insulation
6 1/8 x 18 X3
FP16-FLBI



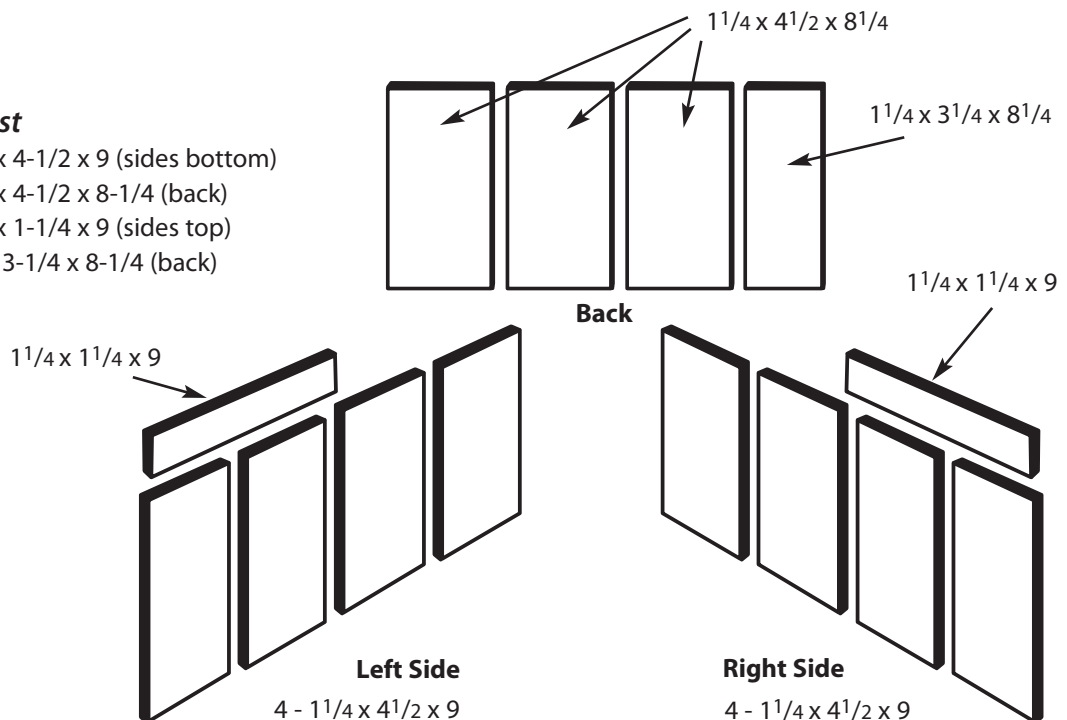
Assembly Instructions

Parts List – Fireplace Insert FP16

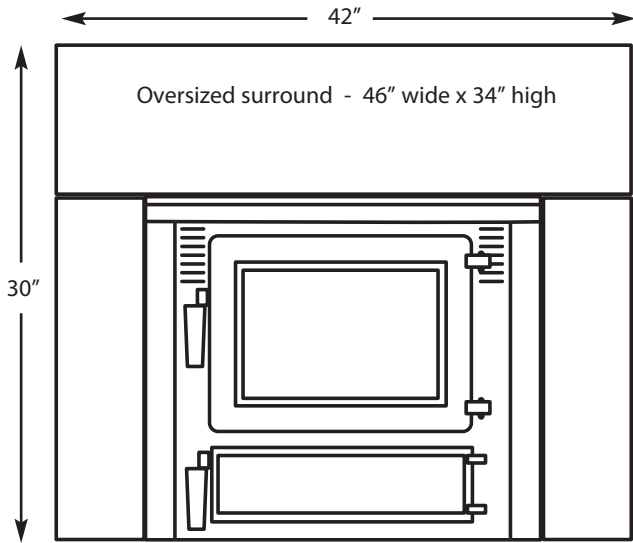
1-Right Side Sheet Metal	FP16-RSS	1-50" 3/4" Rope Gasket (ash door) .....	.34-GR
1-Left Side Sheet Metal	FP16-LSS	1-29" 5/8" Rope Gasket (hopper door) .....	.58-GR
2-Surround Sides	FP16-SSS	1-Fire Door Glass	XV-GL
1-Surround Top	FP16-SST	1-Blower	RB-312 Blower
2-Oversized Surround Sides (optional)	FP16-OSS	1-9 Foot Power Cord .....	.KK9SC
1-Oversized Surround Top (optional)	FP16-OST	1-Left Baffle Re-burn	FP16-LBR
1-Back Sheet Metal	FP16-BS	1-Right Baffle Re-burn	FP16-RBR
1-Removable Coal Hopper (hopper only)	FP-CH	1-Hot Air Regulator	FP16-HAR
1-Coal Hopper Door	FP16-HD	1-Hot Air Regulator Chain .....	.Hot A-Chain
1-Right or Left Firebrick Angle	FP16-FA	1-Hot Air Regulator Fittings .....	.Hot A-Fittings
1-Ash Shaker Bar Assembly	FP-ASBA	1-Hot Air Regulator Knob .....	.Hot-A-Knob
4-Cast Iron 4" x 16" Grates	4X16-C1G	1-Draft Cover Plate	FP16-DCP
2-Cast Iron Grate Rails for 2 – 4" grates .....	.44-GR	1-Draft Intake Cover Lid	FP16-DIC
1-Cast Iron Fireplace Insert Fire Door	XV-FD	1-Back Baffle Insulation (for top back of re-burn baffle)	FP16-BBI
1-Cast Iron Ash Door 20" x 6" .....	.20-AD	2-Side Baffle Insulation (for top sides of re-burn baffles)	FP16-BSI
1 Ash Pan 15-1/2" wide x 21-1/2" long x 2-1/2" deep .....	.155-215-25AP	1-Ash Pan Back Insulation (for behind ash pan)	FP16-APBI
1-Hopper Steel Lever w/wood handle ...	FP16-HDH	1-Firebox Back Insulation (blanket insulation)	FP16-FBI
2-Wood Door Handles for fire and ash doors XV-WDH		1-Firebrick Heat Deflector (11ga.SS 8-1/4 x 16-1/4	FP16-FBHD
1-Wood Shaker Bar Handle	XV-05WH	1-Blower Speed Controller	FAB-1100
2-Wood Handles for Air Wash and Hopper door	XV-03WH		
2-Metal Door Handle (fire and ash doors) ...	XV-FDH		
2-Door Latches (fire and ash doors)	XV-DL		
1-62" 3/4" Rope Gasket (fire door) .....	.34-GR		

Fire Brick List

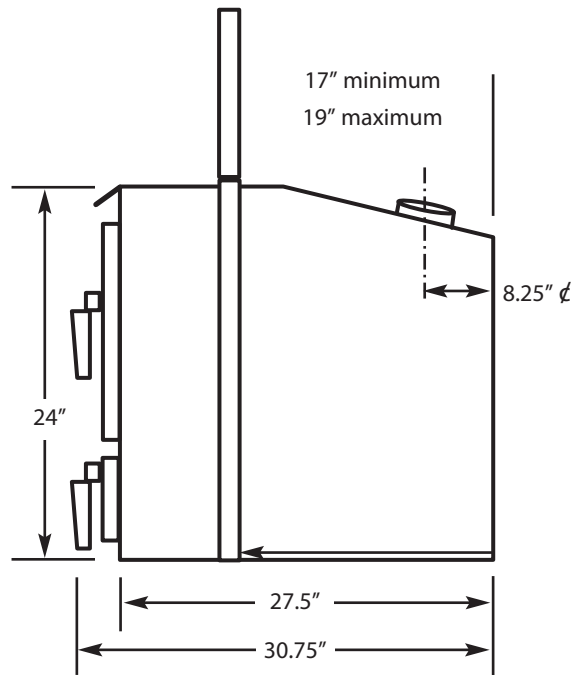
- 8 pcs – 1-1/4 x 4-1/2 x 9 (sides bottom)
- 3 pcs – 1-1/4 x 4-1/2 x 8-1/4 (back)
- 2 pcs – 1-1/4 x 1-1/4 x 9 (sides top)
- 1 pc – 1-1/4 x 3-1/4 x 8-1/4 (back)



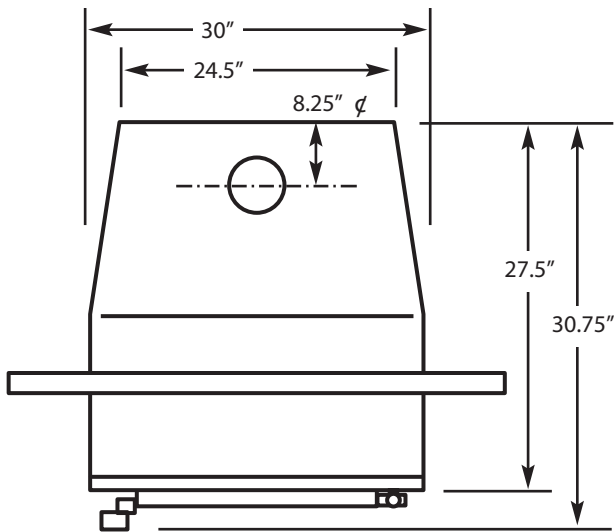
FP16 Measurements



Front View



Right Side View



Top View

Trouble Shooting

Problem 1 - Inadequate heat being delivered to your home,

Solution:

- Check home insulation – is it adequate?
- You might have poor circulation. For example, If your insert is in the basement and it is warmer there than the first floor, put in a few floor vents to help move the hot air to where it's needed. See page 4
- If you have hot air regulator set at High and insert does not heat properly, shorten chain one or more notches (see page 5). DO NOT exceed 600° F on top of insert. Overheating will damage insert.
- Do you have a good draft of 0.06 water column. (Can be checked by a certified chimney sweep)
- If not, check and clean chimney.
- Is blower turned to high?

Problem 2 - Insert burns too hot

- Turn Hot Air Regulator to low. If it does not burn low enough, lengthen chain one or more notches at draft intake (see page 4)
- Check gasket in Bottom Ash Door (replace if needed). Ash door must be sealed.
- Put Air Wash on Low.

Problem 3 - Poor draft

- Check and clean chimney liner
- Check chimney draft – there should be 0.06 inches of water column. This service is provided by a certified chimney sweep.
- Check ash pit. If it is too full - empty it.
- There might be a cracked chimney liner. If so you need to reline chimney before further use of insert.
- Make sure no other fuel burning devices are connected to the chimney impairing the draft.
- Check chimney for possible down draft caused by taller surrounding trees or objects.

Problem 4 - Odor from first fire

- Uncured paints and oils will create an odor that can last a few hours. Odors can continue to develop if you make hot fires until the paint cures.

Problem 5 - Coal gas explosions

- Oiled or wet coal could make matters worse. Coal gas explosions come from lack of oxygen, or lack of secondary air. Set air wash on high.

Problem 6 - Blower does not run

- Is blower plugged in?
- Is speed controller turned on?
- Did fireplace overheat?
- If fireplace top temperature exceeds 600 degrees fahrenheit it is considered to be overheating. Blower in back of fireplace insert has a built in safety that shuts blower down when it overheats. If this happens you will need to turn blower off and let fireplace insert cool down, and turn blower back on after it has cooled down. If blower does not run, check capacitor located right side panel.



LIMITED WARRANTY

DS Fireplace Insert

High Efficiency Hopper Fed Coal Insert

Please read this warranty carefully!

D.S. Stoves warrants this Fireplace Insert against premature failure of any component due to workmanship quality or materials. So long as it is owned by the original purchaser, subject to terms, limitations and conditions herein set out. **Soft coal is prohibited in any DS Fireplace Insert. This warranty is void if Soft Coal is burned in this unit.**

Time Period

1 - Firebox	Five Years
2 - All doors - (fire and ash door)	Five Years
3 - Cast Iron Components (grates and grate rails)	Five Years
4 - All Electrical Components	One Years

D.S. Stoves door glass, gaskets, paint or enameled parts, firebrick, and furnace cement are not covered by this Limited Warranty.

D.S. Stoves will replace, at no charge to the owner, any defective part which D.S. Stoves determines affects the operation of the insert.

The owner is responsible for labor and costs to complete the repair. The owner may at his option and with D.S. Stoves approval, have the insert shipped to the factory for repair. All labor and material costs for repair at the factory will be borne by D.S. Stoves. The owner is responsible for all shipping costs.

Failure to follow installation and basic operation recommendations written in this manual, negligence, abuse modifications to the insert or over firing 600°F maximum, as determined by D.S. Stoves or its authorized dealers. Will also void warranty.

U.S. Environmental Protection Agency. This Heater is ONLY for burning coal. Use of other Solid Fuel except for coal ignition purposes is a violation of Federal Law.

This Limited Warranty is in lieu of all other warranties either expressed or implied.

D.S. Stoves is not responsible for accidents due to improper installation or failure to follow instructions.

– D.S. Stoves
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