fives north american

8480 SERIES
PLUG-IN RECUPERATOR
Bulletin 8480

May 2013

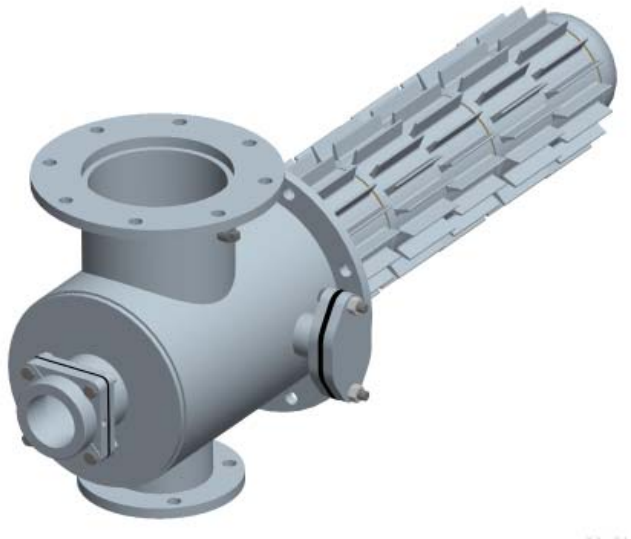
- **Plug-In compatbility with many existing recuperator designs minimizes implementation costs and complexity**
- **Robust construction for improved life over typical plug-in recuperators**

  Cast HT30 Alloy heat exchanger sections provide superior oxidation resistance and strength when compared to commonly available heat exchangers

  Fully welded heat exchanger eliminates threaded connection leak paths

  Stainless Steel body designed to minimize thermally induced stresses and resulting stress cracks and body distortion

- **Unique high efficiency internal swirl vane design provides superior thermal performance and efficiency**



Features Overview:

The 8480 Series Recuperator's highly efficient design offers the potential for significant fuel savings with conventional radiant tubes. The plug-in design enables easy retrofitting of existing installations as well as convenient integration into new systems.

The 8480 features thermally-optimized fins to provide high thermal efficiency while minimizing pressure drop. The outer fins are staggered and segmented to trip the thermal boundary layer and increase heat transfer. Inside, swirling fins increase the turbulence, increasing heat transfer. Together, these surfaces form the core for the exceptional performance of the 8480.

The 8480 is designed to allow users experiencing repeating failures with existing equipment a high performance and robust alternative. A thorough evaluation of several key parameters allows the user to fully understand the benefits associated with the design.

The common “weak point” of conventional plug in recuperators is the main heat exchanger section. The two most common failure modes are separation of the recuperator end cap and combustion air leakage at large threaded connections. Excessive combustion air leakage in the recuperator causes the burner to operate “fuel rich”, resulting in post combustion in the recuperator with subsequent overheating and ultimate failure of the recuperator body. In many cases, the excessive temperatures will also lead to premature failure of the radiant tube.

The 8480 eliminates the common leakage problems by employing robust high temperature HT30 castings assembled with full penetration welds at all connections. The quality of the welds are not taken lightly, employing special preparation and full penetration welding procedures developed specifically for the 8480. This combination of high quality alloys and quality procedures assures the users that the high performance of the 8480 recuperator will continue long after the initial installation.

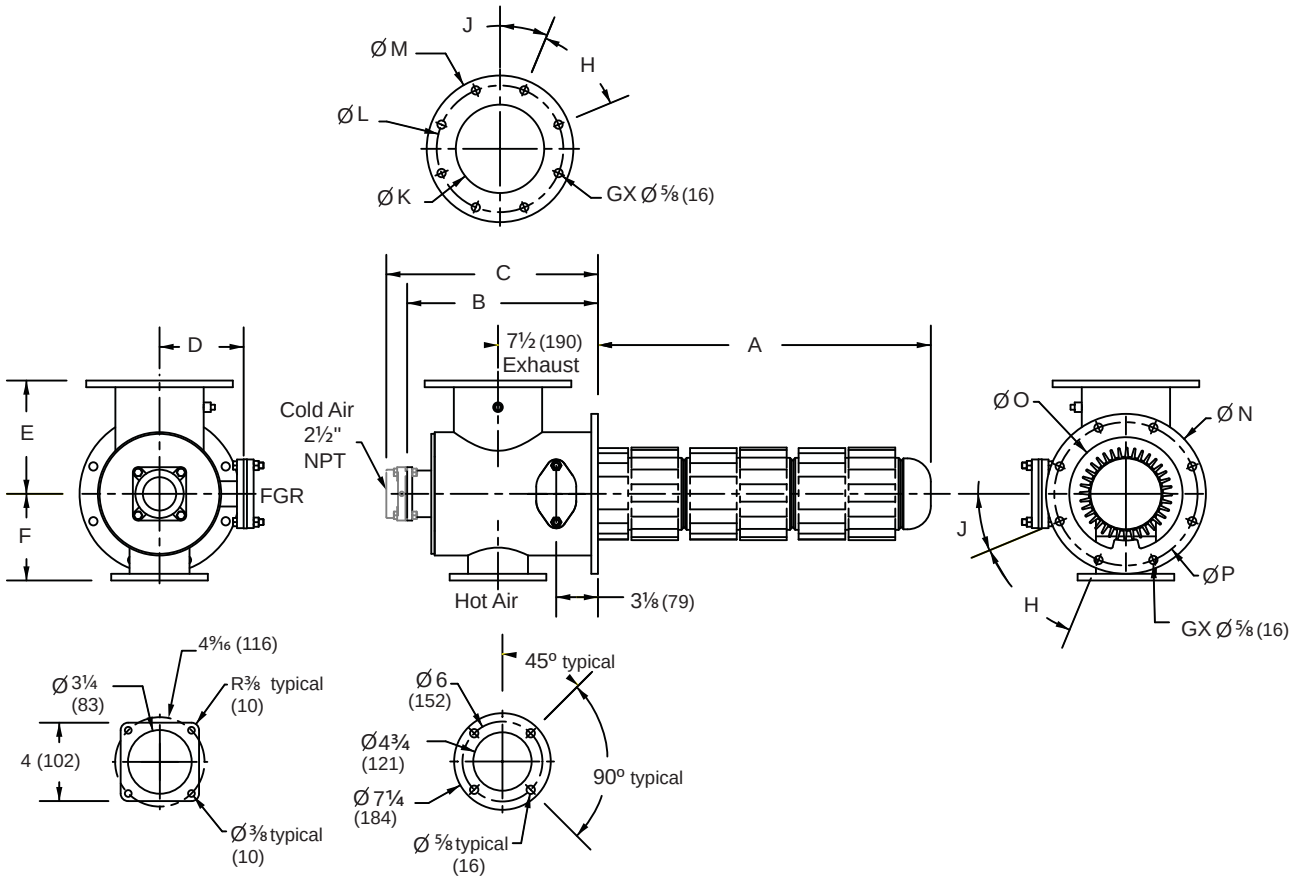
The body of the 8480 is designed to relieve thermally induced stresses eliminating the potential for stress induced cracking of the body. Constructed of austenitic stainless steel, the body does not suffer from excessive grain growth and distortion common of many recuperator designs.

The 8480 radiant tube connection, exhaust connection and hot air connection are designed to match many existing configurations. Additionally, the recuperator length can be varied to match the existing insertion length preventing the recuperator end from penetrating past the hot face of the radiant tube bung insulation. Combined, these features allow easy implementation of the 8480 on many existing applications.

Contact your Fives North American salesperson for details on sizing the 8480 to retrofit you existing installation.

DIMENSIONS

inches (mm)



DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

8480 RECUPERATOR DIMENSIONS (inches)										
	8480-600 (All Arrangements)					8480-700 (All Arrangements)				
Dimension	-600/2.0	-600/2.5	-600/3.0	-600/3.5	-600/4.0	-700/2.0	-700/2.5	-700/3.0	-700/3.5	-700/4.0
A	17 (432)	21¼ (540)	25 (635)	29¼ (743)	33 (838)	17 (432)	21¼ (540)	25 (635)	29¼ (743)	33 (838)
B	13⁵⁄₁₆ (338)					14⁵⁄₁₆ (364)				
C	14⅞ (378)					15⅞ (403)				
D	5⅞₁₆ (138)					6⅝₁₆ (160)				
E	7½ (191)					8½ (216)				
F	5⅝ (143)					6½ (165)				
G	4 (102)					8 (203)				
H	90°					45°				
J	45°					22½°				
K	4⅜ (111)					6⅝ (168)				
L	7½ (191)					9½ (241)				
M	9 (229)					11 (279)				
N	10¼ (260)					12 (305)				
O	5⅞ (149)					8½ (216)				
P	9 (229)					10¾ (273)				

ORDERING INFORMATION

8480 - □ / □ / □

Tube ID (inches)

600	6.1 - 7.0 (155-178 mm)
700	7.1 - 8.0 (180-203 mm)

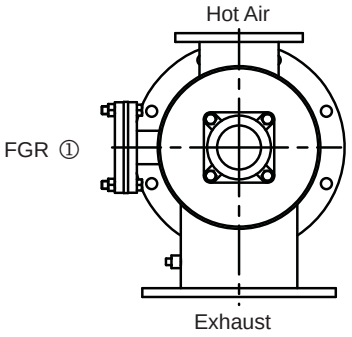
② **Number of Heat Exchange Sections ("A"= insertion length in inches)**

2.0	"A" = 17" (432 mm)
2.5	"A" = 21¼" (540 mm)
3.0	"A" = 25" (635 mm)
3.5	"A" = 29¼" (743 mm)
4.0	"A" = 33" (838 mm)

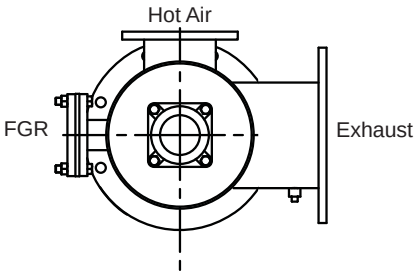
Exhaust Outlet and FGR Location (Specify with Hot Air outlet in 12:00 position)

A
B
C
E
F
G

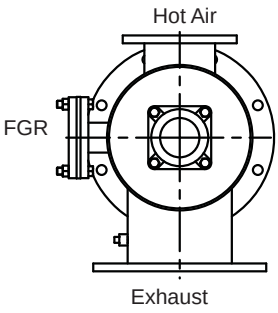
Example: To order a recuperator for a 6½" (165 mm) ID tube, with the mounting flange 25" from the furnace hot face, and the hot air outlet in the 12 o'clock position the part number would be: **8480-600/3.0/B**



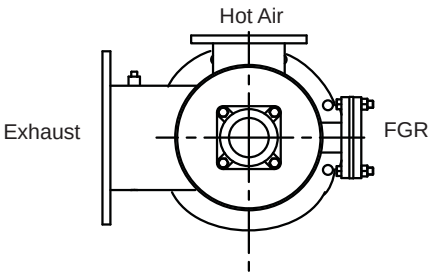
A



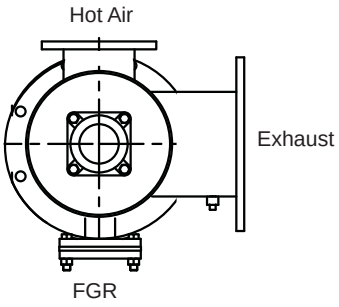
B



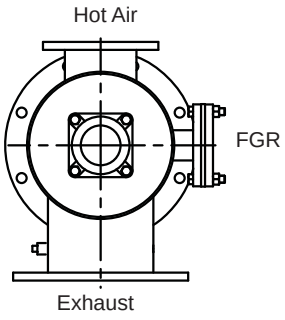
C



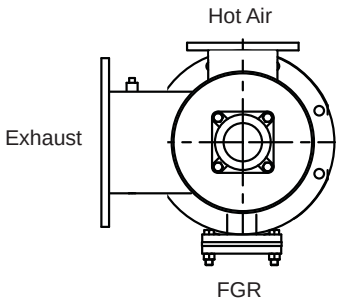
E



F



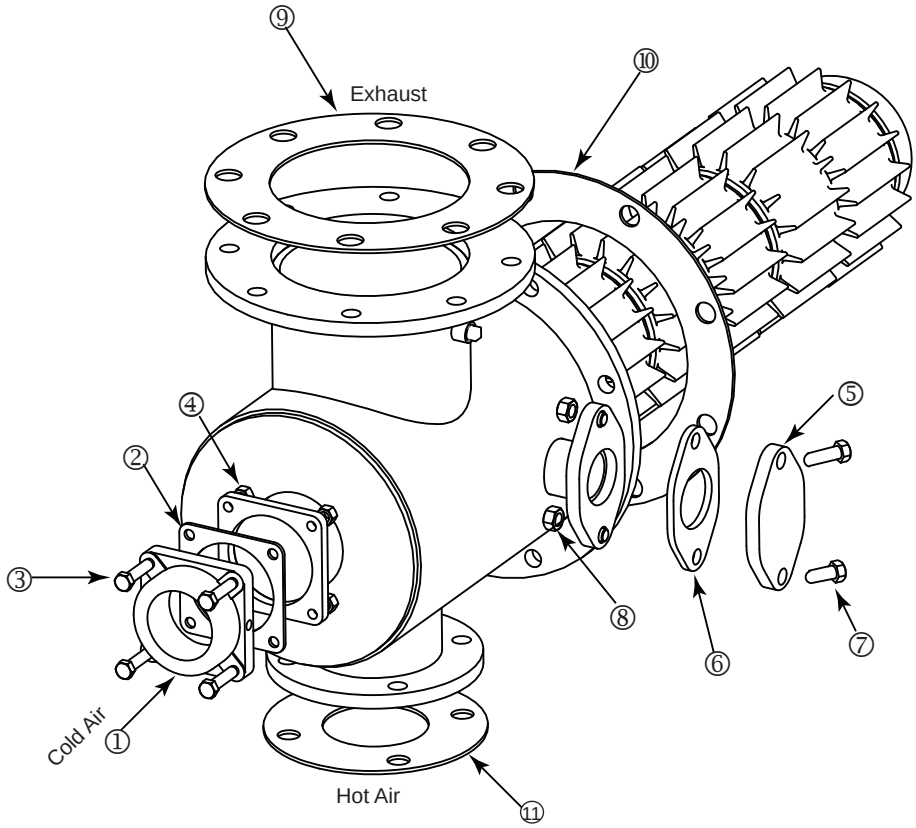
G



① FGR connection is standard. Leave FGR flange cover in place when flue gas recirculation is not required for low emission burner technology.

② If not currently using the FGR connection for low NOx operation, choose a location that allows future access for interconnecting piping to the burner.

Parts List



8480 Recuperator Parts List

Item	Item Number	8480-600	8480-700
Replacement Parts			
Air inlet flange (Cast Iron)	1	4-1695-3	4-1695-3
Air inlet flange gasket (Graphite with SST shim)	2	4-47579-2	4-47579-2
Air flange bolt (4 Req'd.) SST passivated	3	R069-2670-SP	R069-2670-SP
Air flange nut (4 Req'd.) SST passivated	4	R510-8000-SP	R510-8000-SP
FGR cover plate (304 stainless)	5	4-49872-1	4-49872-1
FGR flange gasket (Graphite with SST shim)	6	4-49954-1	4-49954-1
FGR flange bolt (2 Req'd.) SST passivated	7	R066-6750-SP	R066-6750-SP
FGR flange nut (2 Req'd.) SST passivated	8	R510-8252-SP	R510-8252-SP
Accessories (Must be Ordered Separately)			
Exhaust outlet flange gasket (Graphite with SST shim)	9	4-49956-3	4-49955-2
Mounting flange gasket (Graphite with SST shim)	10	4-49956-2	4-49955-1
Hot air outlet flange gasket (Graphite with SST shim)	11	4-49956-1	4-49956-1
Exhaust outlet companion flange (304 stainless)	Not Shown	4-49974-2	4-49975-1
Hot air outlet companion flange (304 stainless)	Not Shown	4-49774-1	4-49774-1

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