

GENERAL DESCRIPTION

The Fully Enclosed Flare (FEF) is a completely enclosed flare system in which combustion occurs inside an insulated flare stack and in a controlled environment. Enclosed combustion ensures that all radiation, light, flame, and noise are imperceptible in sensitive areas. The FEF consists of the following components: flare burner, enclosed stack, combustion air system, control panel, and other optional items.

BURNER AND PILOT — The FEF Burner is the most advanced burner available in the industry today. Its design allows for high destruction efficiency and low emissions. The NOX and CO emission rates meet or exceed the requirements of most regulatory agencies (i.e., SCAQMD). This design allows for efficient combustion in either forced draft or natural draft configurations. Our compact, fuel efficient electronic pilot provides trouble-free, reliable ignition.

ENCLOSED STACK — The enclosed stack is built in modules to allow for ease of shipment and installation. It is insulated with 2" to 3" of high temperature refractory. The stack size is based on flow rate to ensure a minimum of 0.6 seconds residence time for reduced emissions.

COMBUSTION AIR SYSTEM — The FEF can be designed to operate as either a natural draft or forced draft system. The natural draft system has the lowest operating costs and simplest design. In the natural draft system the air is controlled using a set of opposed blade air louvers that open or close as required to maintain a constant combustion chamber temperature. The forced draft system utilizes a blower assembly to provide the necessary air. This system is ideal where high winds may cause a reverse flow in a natural draft system, thereby extinguishing the flame.

CONTROL PANEL — The FEF control panel can be supplied in either a NEMA 4X or NEMA 7 enclosure. Temperature controls, safety systems, remote start / stop, and alarm contacts are standard items. A completely automated system is the design basis for our controls system.



ENCLOSED
LANDFILL FLARES



ENCLOSED
BIO-GAS FLARES

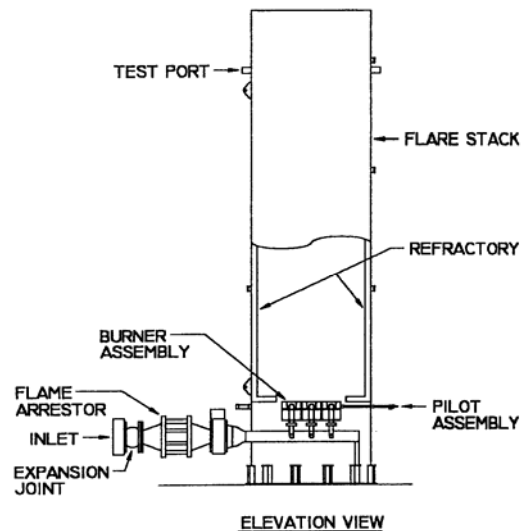
DESIGN FEATURES

Controlled combustion environment
 Natural draft design
 No visible flame
 Low noise
 8 to 1 turndown ration
 Smokeless operation
 Fully automated controls
 High destruction efficiency
 Low NOX emissions
 Low CO emissions
 Skid mounted option
 Modular construction
 Multi-fuel pilot

BENEFIT

Increased destruction efficiency
 Low operating costs
 "Good neighbor" policy
 "Good neighbor" policy
 Good performance under varying operating conditions
 Meets U.S. and international requirements
 Reduced personnel requirements
 99.5% meets U.S. and international emissions standards
 < 0.06 lb/MMbtu (0.11 kg/MMkcal)
 < 0.11 lb/MMbtu (0.2 kg/MMkcal)
 Reduced installation costs
 Reduced installation costs
 Operates on propane, natural gas or bio-gas

BURNER MATERIAL:	Stainless Steel
PILOT MATERIAL:	Stainless Steel
STACK MATERIAL:	Carbon Steel
PROCESS CONNECTION:	150# ANSI Flange
TURN DOWN RATIO:	8:1 (Higher Turndown Optional)
OPERATING TEMPERATURE:	1500°F
NOX EMISSIONS:	< 0.025 #'s/MMBTU's/Hr
CO EMISSIONS:	< 0.06 #'s/MMBTU's/Hr
VISIBLE EMISSIONS:	None
DESTRUCTION EFFICIENCY:	> 99.0%
COMBUSTION EFFICIENCY:	> 99.0%



SPECIFICATIONS:

MODEL	INLET SIZE IN	(MM)	MAX HEAT RELEASE MMBTU/HR	(MMKCAL/HR)	FLOW RATE SCFM	(M ³ /HR)	TURN DOWN RATIO	RETENTION TIME SEC. (MIN)
FEF-2	3	(76)	2.5	(0.63)	75	(127)	8 : 1	0.6
FEF-5	4	(101)	5.0	(1.26)	160	(272)	8 : 1	0.6
FEF-10	6	(152)	10.0	(2.52)	320	(543)	8 : 1	0.6
FEF-18	8	(203)	18.0	(4.54)	650	(1,104)	8 : 1	0.6
FEF-21	10	(254)	21.0	(5.3)	1,000	(1,698)	8 : 1	0.6
FEF-58	12	(305)	58.0	(14.6)	2,000	(3,396)	8 : 1	0.6
FEF-110	14	(355)	110.0	(27.7)	4,500	(7,641)	8 : 1	0.6
FEF-175	16	(406)	175.0	(44.1)	6,000	(10,200)	8 : 1	0.6