

Environmentally Distinctive Burner System

The Environmentally Distinctive Burner has been specifically designed for use in sensitive areas and for client added value to quantify produced emissions. Additional emphasis has been placed on delivering industry leading burn performance and automation.

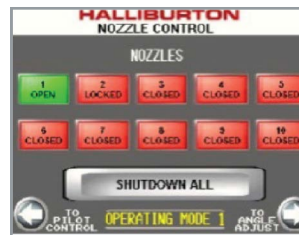
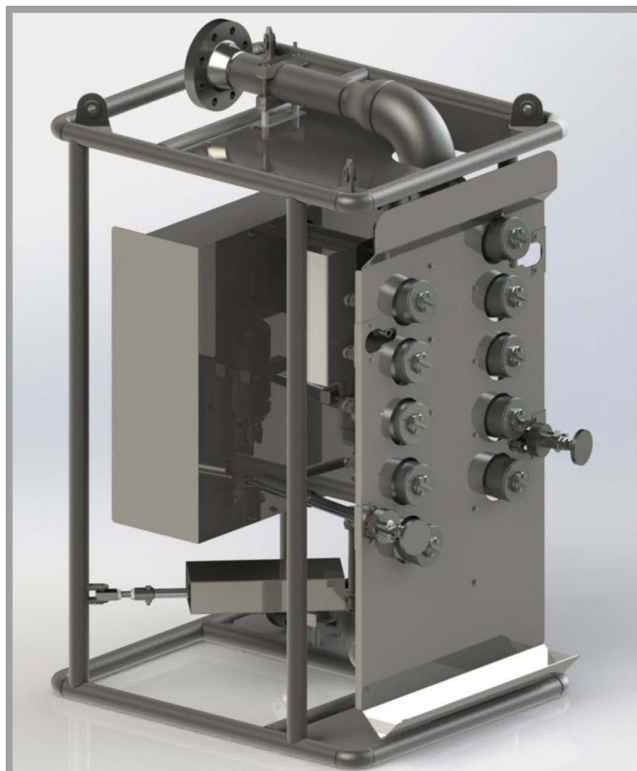
Through extensive testing and qualification, witnessed by a recognized certification authority, the Environmentally Distinctive Burner has achieved the following performance characteristics:

Performance Characteristics		
Fallout Efficiency	99.99952%	Based on Fallout Target Testing
Combustion Efficiency (Carbon Converted into CO ₂)	99.4%*	Reference EPA-600/2-83-052
Destruction Efficiency (Carbon Converted into CO ₂ + CO)	99.5%*	Reference EPA-600/2-83-052
Carbon Dioxide Emissions	41 lb CO ₂ /MMBtu*	Reference EPA-453/R-11-002 & AP 42

*Exceeds EPA references

The burner includes three primary components:

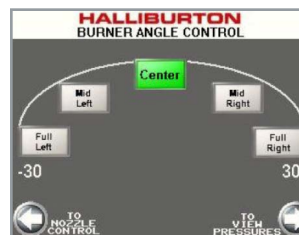
- 1. Burner Head**—Comprises a skid-mounted, 10-nozzle Main Body, and a Local Controls Enclosure
- 2. Pilot System**—Dual-ignition system, complete with Pilot flame detection (in accordance with API-537)
- 3. Burner Management System**—Built-In Programmable Logic Controller with Remote Operator Interface



HMI Display screen for burner nozzles



HMI Display screen for ignition and pilot flame detection



HMI Display screen for burner rotation



HMI Display screen for visual alarms

Air Requirements*		
Total Nozzles Used	Oil Flow Rate (BOPD)	Total Burner Air Flow Rate (SCFM /MBOPD)
1	500 to 1,200	1020
2	1,000 to 2,400	1630
3	1,500 to 3,600	2140
4	2,000 to 4,800	2600
5	2,500 to 6,000	3020
6	3,000 to 7,200	3415
7	3,500 to 8,400	3790
8	4,000 to 9,600	4145
9	4,500 to 10,800	4490
10	5,000 to 12,000	4800

* General requirements, actual requirements to be defined via the DoS Process.

Applications

- Exploration and appraisal well testing
- Cleanup and flow back
- Extended well testing

Features and Benefits

- Extensive product testing and qualification, witnessed and documented by a recognized certification authority
- Testing and qualification references United States Environmental Protection Agency (EPA) benchmarking
- Consistent smoke-free burns throughout the range of the burner
- Burner Management System:
 - Programmable Logic Controller (PLC)
 - Remote Operating and Monitoring system
 - Logic applied to help ensure safe startup of flowing operations
 - Burner Shutdown of 0.3 seconds (remote shutdown of the complete burner or by individual nozzle)
 - Remote Nozzle Operation with touch screen display to open/close all nozzles (displays real-time status)
 - Burner Head Rotation—Operated via the Remote Operator Interface (+/-30°)
 - Dual-Ignition System (Primary and Secondary)—In accordance with API-537
- Ignition System Operations—Remote Operator Interface to ignite, displays real-time status (Pilot flame detection)
- Real-time Oil and Air Manifold pressure monitoring
- Audible and Visual Alarm system
- PLC helps ensure safe startup of flowing operations
- Flame footprint mitigates heat radiation back to the rig
- CO₂ emissions for the complete well test that can be calculated based on accumulated oil flow
- Burner head heat shielding
- Overlapping spray patterns help ensure reliable cross-lighting of burner nozzles
- Constant air bleed path (per nozzle):
 - Nozzle cooling
 - Burn off residue—No drip or spill
- Combustion air is utilized for Pneumatic System:
 - Nozzle that opens only when compressors are active
 - Accumulator tank that enables nozzle shutdown if air compressors fail

Environmentally Distinctive Burner System Specifications*	
Part Number	102248238
Capacity bbl/d (m ³ /d)	12,000 (1900)
Working Pressure psi (bar)	1,440 (99.3)
Working Temperature °F (°C)	-20 to 250 (-29 to 121)
Service	H ₂ S
Manufacturing Codes	ASME B31.3, NACE MR-01-75, ATEX (Control System)
Efficiency and Emission Design Standards**	<ul style="list-style-type: none"> • EPA-600/2-83-052 • 40 CFR Part 2, Section 301 • 42 U.S.C. 7411 • EPA-453/R-11-002 • AP-42 Guideline
Number of Nozzles	10 Nozzles
Safety Devices	Non-Return Valves on Air and Oil Lines
Ignition System	Qty. 2 Stackmatch 2-Jet V-Flame Hot Rod (SAP No. 102314743)
Water Curtain	Not Included
Maximum Required Air Flow Rate SCFM/MBOPD	3,420 to 4,800
Air Rate Requirement SCFM/MBOPD	285 to 400
Maximum Operating Water Cut (Stable Cond.)%	30
Burner Rotation	+/-30° Off Center
Burner Nozzle Shutdown	0.3 seconds
Standard Turndown Capacity	40:01
Skid Weight lb (kg)	1,498 (680)
Dimensions (L x W x H) ft	4 x 3.4 x 5.8
Pilot Gas Requirement	Propane @ 25 psig (8 SCFH per Hot Rod)
Flame Jet Gas Requirement	Propane @ 20 psig (550 SCFH per Hot Rod)

* Detailed equipment specification data can be obtained within the CWI database.

** Based on U.S. Code of Federal Regulations and Environmental Protection Administration standards.

Different configurations are available upon request.

Refer to the equipment databook for individual equipment specifications.

Equipment is designed/certified ASME B31.3, NACE MR-01-75, CE/PED, NORSOK, etc. standards as applicable and documented on the individual Equipment Specification Data Sheets (ESDS).

These ratings are guidelines only. Contact your local Halliburton SWT representative for more information.

Actual job requirements should be defined via the DoS Process.

**For more information, contact your local Halliburton representative or
email us at welltesting@halliburton.com.**