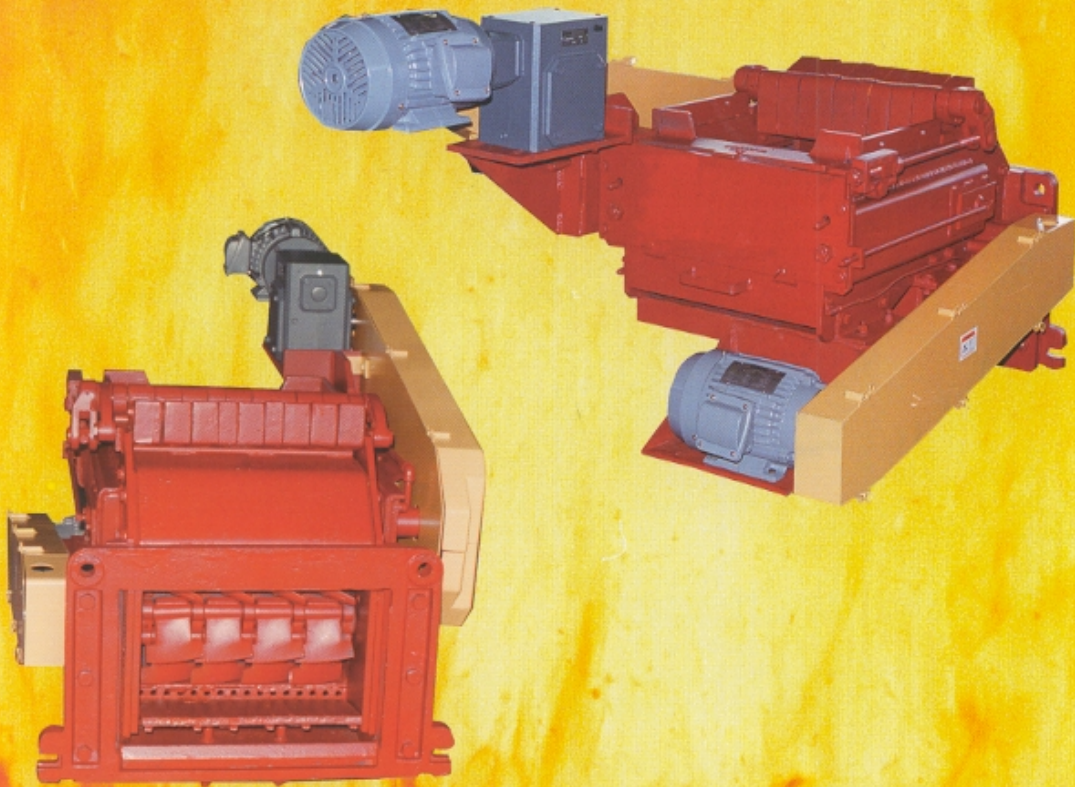


# DETROIT® UNDERTHROW FUEL DISTRIBUTOR

*A Pneumatically Assisted Feeder*



As the power producing environment becomes more deregulated, companies are trying even harder to make greater use of less expensive fuels. Consequently, stoker operators are taking advantage of cost effective fuels such as coals of varying size, moisture and Btu content. These fuels, however, are often difficult to consistently and evenly distribute over the stoker bed. Detroit's Underthrow Fuel Distributor is the ideal choice for spreader stokers burning coal containing a high quantity of fines and moisture.

The underthrow design of the rotor coupled with pneumatic assistance is a revolutionary change to fuel distributor products. The Underthrow distributor discharges the fuel on the underside of the rotor, enabling the blades to contact the coal for a longer period of time than other distributors. This design feature in conjunction with the pneumatic distributor plate, facilitates a more horizontal trajectory of fuel, therefore distributing the fine particles more consistently onto the bed area.



*These Detroit® Underthrow Fuel Distributors feed coal at a municipal utility plant*

The Underthrow is primarily used for coal distribution for spreader stokers, and can be retrofitted to virtually any spreader stoker application. It can also be used with fluid bed boilers and to distribute other solid materials of similar size.

## FEATURES AND BENEFITS

### PROMOTES COMBUSTION EFFICIENCY

- Ideal for distributing fuels inconsistent in size and moisture content
- Distributes fuels more consistently and evenly than other feeders
- Ideal for distributing fines and other inconsistent material at longer distances
- Improved distribution of fuel promotes less suspension firing resulting in lower loss of ignition

### COST EFFECTIVE

- Our innovative design makes the Underthrow ideal for lower quality, less expensive fuel

### REDUCED MAINTENANCE TIME AND FEWER REPLACEMENT PARTS

- Fewer moving parts to maintain than other feeders
- The chain conveying carriage is protected from direct radiant heat exposure
  - Reduces deterioration of parts from heat
  - Reduces the need for replacement parts
- Internal parts removable in two main assemblies
  - Carriage is readily removable as a single subassembly from the front of the distributor in a pullout module
  - The rotor drum assembly is easily removed in a single assembly
- Internals can be replaced without removing feeder from the stoker front plate

## ILLUSTRATED FEATURES OF THE UNDERTHROW

**1 FUEL HOPPER** - Available as a standard or custom design and with various materials of construction. A cutoff device above each distributor is recommended to facilitate maintenance.

**2 CHAIN CONVEYOR CARRIAGE** - Meters the fuel feed by varying the speed of the motor from the combustion control system.

**3 CARRIAGE DRIVE** - Is separate for each distributor and driven by a 1 HP, T.E.F.C. motor and gear reduction unit. Carriage speed control is not furnished; however an A.C. variable frequency drive package is available as an option. Each distributor can be varied in speed automatically in unison from a common control signal while still allowing for individual biasing of any one distributor in relation to the others. This provides for optimum fuel distribution.

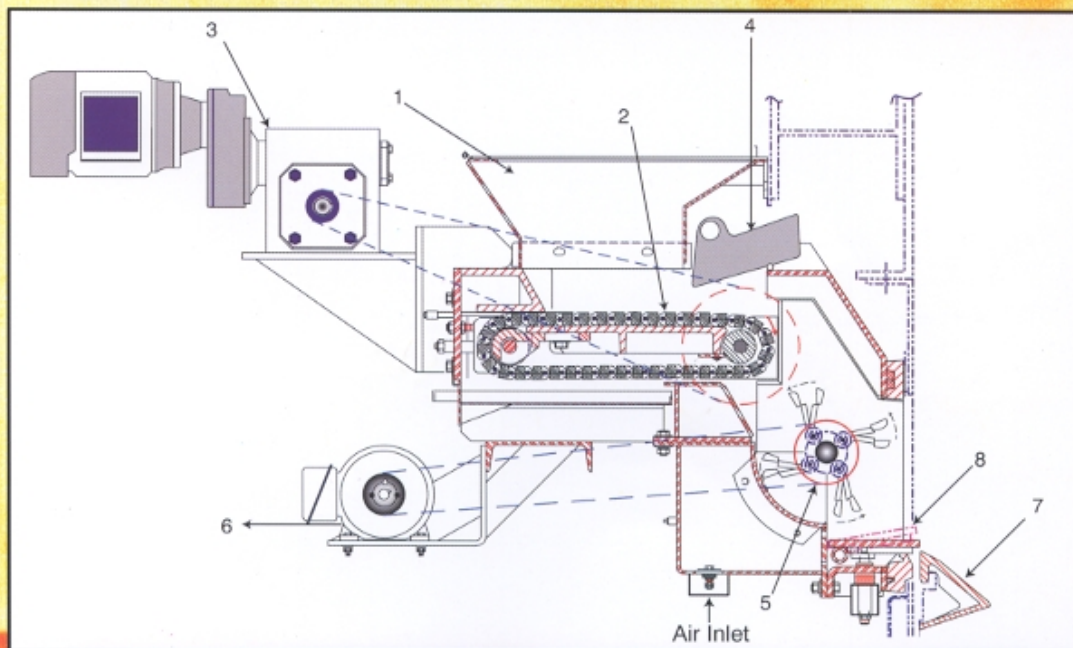
**4 ADJUSTABLE THROAT BLADE** - Limits the depth of the fuel on the carriage and controls the fuel discharge to the distributing rotor.

**5 DISTRIBUTING UNDERTHROW ROTOR** - Spreads the fuel in the furnace evenly, longitudinally and laterally, over the stoker grate surface.

**6 ROTOR DRIVE** - Is independent for each distributor and driven by a 1 HP, T.E.F.C. motor. Rotor speed is controlled manually to obtain the best longitudinal fuel distribution. Rotor speed control is not furnished; however, control devices are available as options. A zero speed switch is furnished to interlock with the carriage drive in the event of a stalled rotor.

**7 AIR COOLED APRON TUYERES** - Line the bottom of the distributor discharge opening into the furnace in coal firing applications providing a cool surface in this area to prevent the build-up of fines which could interfere with proper fuel distribution.

**8 ADJUSTABLE DISTRIBUTOR PLATE** - The fuel is directed by the position of an air swept adjustable plate. The plate can be rotated from the horizontal position up to a 10 degree incline to project fuel to the rear of the stoker, and can be adjusted while the boiler is on-line. The removable plate is fabricated with a wear resistant chromium carbide overlay for extended life.



# DETROIT COMBUSTION SYSTEM SERVICE PROVIDES WORLDWIDE SUPPORT

Detroit's worldwide support organization draws on 100 years of experience as the world's leading supplier of stokers and related equipment to provide complete maintenance and upgrade services. Whether a routine maintenance assignment or a comprehensive fuel conversion, our service group supplies everything - design and site engineering, site supervision, labor, the right equipment to complete the job promptly and dependable Detroit equipment and parts.

## REPAIR AND REBUILD SERVICES

Detroit's service group repairs and rebuilds all types of combustion, ash and fuel handling systems whether built by Detroit Stoker or other major manufacturers. The Detroit team is unparalleled in helping our customers meet the rigorous demands imposed on today's combustion systems.

## COST EFFECTIVE FUEL CONVERSION

The Detroit® Underthrow Fuel Distributor allows many plants to convert to more cost effective fuels such as coals of varying size, moisture and Btu content. The Underthrow can be retrofitted to virtually any spreader stoker application.

## INSPECTION AND TUNE-UP SERVICES

Detroit's field personnel perform complete inspection and combustion tune-ups on all systems. Our program includes full inspection of combustion equipment, testing of flue gasses, emission testing and all necessary adjustments to optimize combustion efficiency.



*Service Representative replacing a feeder*

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